DRIVER-CUM AUTO MECHANIC (LMV)

COMPETENCY BASED CURRICULUM

(Duration: 1 Year 3 Months)

APPRENTICESHIP TRAINING SCHEME (ATS)

NSQF LEVEL- 4

SECTOR – AUTOMOBILE

सत्यमेव जयते

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

Directorate General of Training

Skill India
कौशल भारत-कुशल भारत

DRIVER-CUM AUTO MECHANIC (LMV)

(Revised in 2018)

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NSQF LEVEL - 4

Developed By

Ministry of Skill Development and Entrepreneurship
Directorate General of Training
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Special acknowledgement is extended by DGT to the following expert members who had contributed immensely in this curriculum.

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1.	Shri V. Anbalagan	Pallavan Transport Corpn. Madras	Chairman
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1. BACKGROUND

1.1 Apprenticeship Training Scheme under Apprentice Act 1961

The Apprentices Act, 1961 was enacted with the objective of regulating the programme of training of apprentices in the industry by utilizing the facilities available therein for imparting on-the-job training. The Act makes it obligatory for employers in specified industries to engage apprentices in designated trades to impart Apprenticeship Training on the job in industry to school leavers and person having National Trade Certificate(ITI pass-outs) issued by National Council for Vocational Training (NCVT) to develop skilled manpower for the industry**.** There are four categories of apprentices namely**; trade apprentice, graduate, technician and technician (vocational) apprentices.**

Qualifications and period of apprenticeship training of **trade apprentices** vary from trade to trade. The apprenticeship training for trade apprentices consists of basic training followed by practical training. At the end of the training, the apprentices are required to appear in a trade test conducted by NCVT and those successful in the trade tests are awarded the National Apprenticeship Certificate.

The period of apprenticeship training for graduate (engineers), technician (diploma holders and technician (vocational) apprentices is one year. Certificates are awarded on completion of training by the Department of Education, Ministry of Human Resource Development.

1.2 Changes in Industrial Scenario

Recently we have seen huge changes in the Indian industry. The Indian Industry registered an impressive growth during the last decade and half. The number of industries in India have increased manifold in the last fifteen years especially in services and manufacturing sectors. It has been realized that India would become a prosperous and a modern state by raising skill levels, including by engaging a larger proportion of apprentices, will be critical to success; as will stronger collaboration between industry and the trainees to ensure the supply of skilled workforce and drive development through employment. Various initiatives to build up an adequate infrastructure for rapid industrialization and improve the industrial scenario in India have been taken.

1.3 Reformation

The Apprentices Act, 1961 has been amended and brought into effect from 22nd December, 2014 to make it more responsive to industry and youth. Key amendments are as given below:

- Prescription of number of apprentices to be engaged at establishment level instead of trade-wise.
- Establishment can also engage apprentices in optional trades which are not designated, with the discretion of entry level qualification and syllabus.
- Scope has been extended also to non-engineering occupations.
- Establishments have been permitted to outsource basic training in an institute of their choice.
- The burden of compliance on industry has been reduced significantly.

2. TRAINING SYSTEM

2.1 GENERAL

Directorate General of Training (DGT) under Ministry of Skill Development & Entrepreneurship offers range of vocational training courses catering to the need of different sectors of economy/ Labour market. The vocational training programmes are delivered under aegis of National Council of Vocational Training (NCVT). Craftsman Training Scheme (CTS) and Apprenticeship Training Scheme (ATS) are two pioneer programmes of NCVT for propagating vocational training.

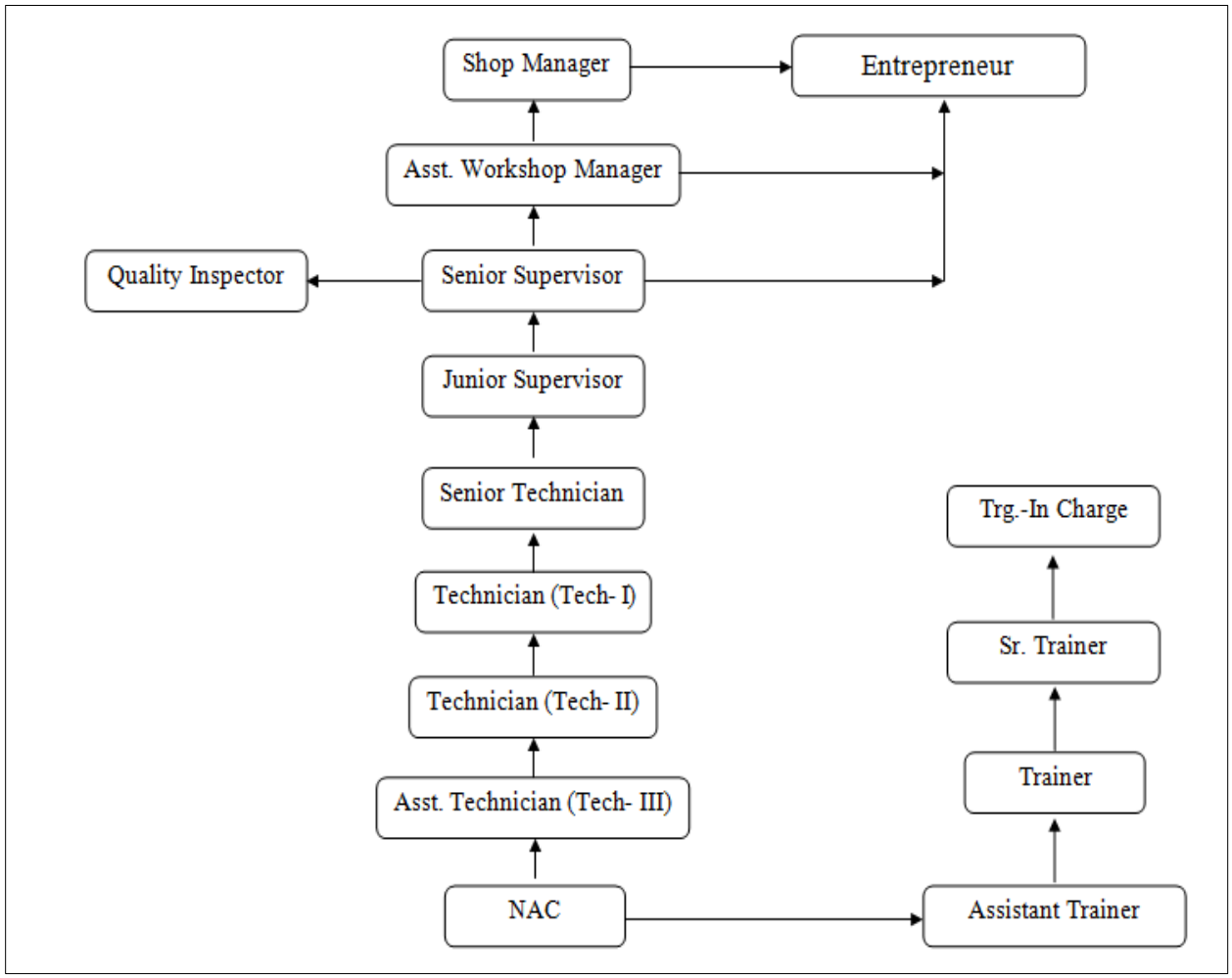
Driver-Cum Auto Mechanic (LMV) trade under ATS is one of the most popular courses delivered nationwide through different industries. The course is of one year three months (01 Block of 15 months duration including basic training) duration. It mainly consists of Domain area and Core area. In the Domain area Trade Theory & Practical impart professional - skills and knowledge, while Core area - Workshop Calculation and science, Engineering Drawing and Employability Skills imparts requisite core skills & knowledge and life skills. After passing out the training programme, the trainee is being awarded National Apprenticeship Certificate (NAC) by NCVT having worldwide recognition.

Broadly candidates need to demonstrate that they are able to:

- Read & interpret technical parameters/document, plan and organize work processes, identify necessary materials and tools;
- Perform task with due consideration to safety rules, accident prevention regulations and environmental protection stipulations;
- Apply professional skill, knowledge, core skills & employability skills while performing jobs and solve problem during execution.
- Check the job/assembly as per drawing for functioning, identify and rectify errors in job/assembly.
- Document the technical parameters related to the task undertaken.

2.2 CAREER PROGRESSION PATHWAYS:

- Indicative pathways for vertical mobility.



2.3 COURSE STRUCTURE:

Table below depicts the distribution of training hours across various course elements during a period of one year (*Basic Training and On-Job Training*): -

Total training duration details: -

Time (in months)	1-3	4 - 15
Basic Training	**Block– I**	**-----**
Practical Training (On - job training)	**----**	**Block – I**

A. Basic Training

For 02 yrs. course (Engg.) :-(**Total 06 months:** 03 months in 1st yr. + 03 months in 2nd yr.)
For 01 yr. course (Engg.) :-(**Total 03 months:** 03 months in 1st yr.)

S No.	Course Element	Total Notional Training Hours	
		For 02 Yrs. course	**For 01 Yr. course**
1.	Professional Skill (Trade Practical)	550	275
2.	Professional Knowledge (Trade Theory)	240	120
3.	Workshop Calculation & Science	40	20
4.	Engineering Drawing	60	30
5.	Employability Skills	110	55
	Total (Including internal assessment)	**1000**	**500**

B. On-Job Training:-

For 02 yrs. Course (Engg.) :-(**Total 18 months:** 09 months in 1st yr. + 09 months in 2nd yr.)

Notional Training Hours for On-Job Training: 3120 Hrs.

For 01 yr. course (Engg.) :-(**Total 12 months**)

Notional Training Hours for On-Job Training: 2080 Hrs.

C. Total training hours:-

Duration	Basic Training	On-Job Training	Total
For 02 yrs. course (Engg.)	1000 hrs.	3120 hrs.	4120 hrs.
For 01 yr. course (Engg.)	500 hrs.	2080 hrs.	2580 hrs.

2.4 ASSESSMENT & CERTIFICATION:

The trainee will be tested for his skill, knowledge and attitude during the period of course and at the end of the training programme as notified by Govt of India from time to time. The Employability skills will be tested in first two semesters only.

a) The **Internal assessment** during the period of training will be done by **Formative assessment method** by testing for assessment criteria listed against learning outcomes. The training institute have to maintain individual *trainee portfolio* as detailed in assessment guideline. The marks of internal assessment will be as per the template (Annexure – II).

b) The final assessment will be in the form of summative assessment method. The All India Trade Test for awarding NAC will be conducted by NCVT on completion of course as per guideline of Govt of India. The pattern and marking structure is being notified by govt of India from time to time. **The learning outcome and assessment criteria will be basis for setting question papers for final assessment. The examiner during final examination will also check** individual trainee's profile as detailed in assessment guideline before giving marks for practical examination.

2.4.1 PASS REGULATION

The minimum pass percent for Practical is 60% & minimum pass percent for Theory subjects 40%. The candidate pass in each subject conducted under all India trade test.

2.4.2 ASSESSMENT GUIDELINE

Appropriate arrangements should be made to ensure that there will be no artificial barriers to assessment. The nature of special needs should be taken into account while undertaking assessment. Due consideration should be given while assessing for team work, avoidance/reduction of scrap/wastage and disposal of scarp/wastage as per procedure, behavioral attitude, sensitivity to environment and regularity in training. The sensitivity towards OSHE and self-learning attitude are to be considered while assessing competency.

Assessment will be evidence based comprising the following:

- Job carried out in labs/workshop
- Record book/ daily diary
- Answer sheet of assessment
- Viva-voce
- Progress chart
- Attendance and punctuality
- Assignment
- Project work

Evidences of internal assessments are to be preserved until forthcoming semester examination for audit and verification by examination body. The following marking pattern to be adopted while assessing:

Performance Level	Evidence
(a) Weightage in the range of 60 -75% to be allotted during assessment	
For performance in this grade, the candidate with occasional guidance and showing due regard for safety procedures and practices, has produced work which demonstrates attainment of an acceptable standard of craftsmanship.	• Demonstration of good skill in the use of hand tools, machine tools and workshop equipment • Below 70% tolerance dimension/accuracy achieved while undertaking different work with those demanded by the component/job/set standards. • A fairly good level of neatness and consistency in the finish • Occasional support in completing the project/job.
(b)Weightage in the range of above75% - 90% to be allotted during assessment	
For this grade, the candidate, with little guidance and showing due regard for safety procedures and practices, has produced work which demonstrates attainment of a reasonable standard of craftsmanship.	• Good skill levels in the use of hand tools, machine tools and workshop equipment • 70-80% tolerance dimension/accuracy achieved while undertaking different work with those demanded by the component/job/set standards. • A good level of neatness and consistency in the finish • Little support in completing the project/job
(c) Weightage in the range of above 90% to be allotted during assessment	
For performance in this grade, the candidate, with minimal or no support in organization and execution and with due regard for safety procedures and practices, has produced work which demonstrates attainment of a high standard of craftsmanship.	• High skill levels in the use of hand tools, machine tools and workshop equipment • Above 80% tolerance dimension/accuracy achieved while undertaking different work with those demanded by the component/job/set standards. • A high level of neatness and consistency in the finish. • Minimal or no support in completing the project.

3. JOB ROLE

Brief description of Job roles:

1. PERFORM BASIC MAINTENANCE
   a. Check electrical bulbs and components for proper working
   b. Lubricating the vehicle moving components
   c. Check Oil level in different unit.
   a. Adjust pedal/lever free play
   b. Inflate tyres

2. PERFORM SERVICE COOLING SYSTEM
   a. Perform cooling system pressure tests, inspect and test radiator, pressure cap, coolant recovery tank, and hoses.
   b. Inspect, refit and adjust drive belts, and pulleys; check pulley and belt alignment
   c. Inspect, test, and refit thermostat
   d. Inspect and test fan

3. PERFORM SERVICE LUBRICATING SYSTEM
   a. Change engine oil and filter
   b. Flush lubricating system

4. IDENTIFY ENGINE PROBLEMS and RECTIFY.
   a. Setting injection timing
   b. Service and test injectors

5. PERFORM BRAKE SYSTEM
   a. Checking of brake fluid level Bleeding brake system
   b. Clean and adjust disc brake assembly
   c. Clean and adjust the drum brake assembly

6. PERFORM WHEEL & TYRES WORK
   a. Checking wheel jam & slipping of clutch.
   b. Repairing a punchered tube
   c. Repairing tubeless tyre puncture
   d. Wheel balancing

7. PERFORM ELECTRICAL AND ELECTRONICS
   a. Test battery
   b. Check cranking voltage and charging voltage

c. Carrying out checks on starting system
d. Carrying out checks on Alternator unit,
e. Tune horn
f. Replace head light and tail lights
g. Align head light
h. Test electrical components for its proper functioning
i. Remove and refit sensors
j. Inspect electrical gauges

8. SERVICE INTAKE, EXHAUST AND EMISSION SYSTEM
   a. Remove, clean and refit intake and exhaust manifold
   b. Service secondary air induction system

In addition DRIVER-CUM AUTO MECHANIC (LMV) trade have the ability to visualize the job, good coordination, mechanical attitude, manual dexterity and perform work related mathematical calculations.

Plan and organize assigned work and detect & resolve issues during execution. Demonstrate possible solutions and agree tasks within the team. Communicate with required clarity and understand technical English. Sensitive to environment, self-learning and productivity

May be designated as DRIVER-CUM AUTO MECHANIC (LMV) trade according to nature of work done

On successful completion of the course the candidates can either get employed, or become a self-employed Entrepreneur in any one of the following fields.

a) Wage Employment

1. DRIVER-CUM AUTO MECHANIC (LMV)
2. Driver/Vehicle Operator (Three Wheeler)

b) Self Employment

1. Taxi / Car Driver

Reference NCO 2015:

8322.0100 – Driver, Car
8322.0501 – Light Motor Vehicle Driver

4. NSQF LEVEL COMPLIANCE

NSQF level for DRIVER-CUM AUTO MECHANIC (LMV) trade trade under ATS: **Level 4**

As per notification issued by Govt. of India dated- 27.12.2013 on National Skill Qualification Framework total 10 (Ten) Levels are defined.

Each level of the NSQF is associated with a set of descriptors made up of five outcome statements, which describe in general terms, the minimum knowledge, skills and attributes that a learner needs to acquire in order to be certified for that level.

Each level of the NSQF is described by a statement of learning outcomes in five domains, known as level descriptors. These five domains are:

a. Process
b. professional knowledge,
c. professional skill,
d. core skill and
e. Responsibility.

The Broad Learning outcome of DRIVER-CUM AUTO MECHANIC (LMV) trade trade under ATS mostly matches with the Level descriptor at Level- 4.

The NSQF level-4 descriptor is given below:

Level	Process Required	Professional Knowledge	Professional Skill	Core Skill	Responsibility
Level 4	Work in familiar, predictable, routine, situation of clear choice.	Factual knowledge of field of knowledge or study	Recall and demonstrate practical skill, routine and repetitive in narrow range of application, using appropriate rule and tool, using quality concepts	Language to communicate written or oral, with required clarity, skill to basic Arithmetic and algebraic principles, basic understanding of social political and natural environment.	Responsibility for own work and learning.

5. GENERAL INFORMATION

Name of the Trade	DRIVER-CUM AUTO MECHANIC (LMV)
NCO - 2015	i) 8322.0100 – Driver, Car ii) 8322.0501 – Light Motor Vehicle Driver
NSQF Level	Level – 4
Duration of Apprenticeship Training (Basic Training + On-Job Training)	3 months + One year (01 Block of 15 months duration including basic training).
Duration of Basic Training	a) Block –I : 3 months **Total duration of Basic Training: 3 months**
Duration of On-Job Training	a) Block–I: 12 months **Total duration of Practical Training: 12 months**
Entry Qualification	Passed 10th Class with Science and Mathematics under 10+2 system of Education or its equivalent
Selection of Apprenticeship	The apprentices will be selected as per Apprenticeship Act amended time to time.
Instructors Qualification for Basic Training	As per ITI instructors qualifications as amended time to time for the specific trade.
Infrastructure for basic training	As per related trade of ITI
Examination	The internal examination/ assessment will be held on completion of each block. Final examination for all subjects will be held at the end of course and same will be conducted by NCVT.
Rebate to Ex-ITI Trainees	03 months
CTS trades eligible for DRIVER-CUM AUTO MECHANIC (LMV) trade Apprenticeship	1. DRIVER-CUM AUTO MECHANIC (LMV) trade

Note:

- *Industry may impart training as per above time schedule for different block, however this is not fixed. The industry may adjust the duration of training considering the fact that all the components under the syllabus must be covered. However the flexibility should be given keeping in view that no safety aspects is compromised.*
- *For imparting Basic Training the industry to tie-up with ITIs having such specific trade and affiliated to NCVT.*

6. LEARNING OUTCOME

6.1 GENERIC LEARNING OUTCOME

The following are minimum broad Common Occupational Skills/ Generic Learning Outcome after completion of the DRIVER-CUM AUTO MECHANIC (LMV) course of 01 years and 03 months duration under ATS.

Block I:-

1. Recognize & comply safe working practices, environment regulation and housekeeping.

2. Understand and explain different mathematical calculation & science in the field of study including basic electrical. *[Different mathematical calculation & science -Work, Power & Energy, Algebra & Mensuration, Trigonometry, Heat & Temperature, Levers & Simple machine, graph, Statistics, Centre of gravity, Power transmission, Pressure]*

3. Interpret specifications, different engineering drawing and apply for different application in the field of work. *[Different engineering drawing-Geometrical construction, Dimensioning, Layout, Method of representation, Symbol, scales, Different Projections, Machined components & different thread forms, Assembly drawing, Sectional views, Estimation of material, Electrical & electronic symbol]*

4. Select and ascertain measuring instrument and measure dimension of components and record data.

5. Explain the concept in productivity, quality tools, and labour welfare legislation and apply such in day to day work to improve productivity & quality.

6. Explain energy conservation, global warming and pollution and contribute in day to day work by optimally using available resources.

7. Explain personnel finance, entrepreneurship and manage/organize related task in day to day work for personal & societal growth.

8. Plan and organize the work related to the occupation.

6.2 SPECIFIC LEARNING OUTCOME

Block – I

1. PERFORM BASIC MAINTENANCE
   a. Check electrical bulbs and components for proper working
   b. Lubricating the vehicle moving components
   c. Check Oil level in different unit.
   c. Adjust pedal/lever free play
   d. Inflate tyres

2. PERFORM SERVICE COOLING SYSTEM
   a. Perform cooling system pressure tests, inspect and test radiator, pressure cap, coolant recovery tank, and hoses.
   b. Inspect, refit and adjust drive belts, and pulleys; check pulley and belt alignment
   c. Inspect, test, and refit thermostat
   d. Inspect and test fan

3. PERFORM SERVICE LUBRICATING SYSTEM
   a. Change engine oil and filter
   b. Flush lubricating system

4. IDENTIFY ENGINE PROBLEMS and RECTIFY.
   a. Setting injection timing
   b. Service and test injectors

5. PERFORM BRAKE SYSTEM
   a. Checking of brake fluid level Bleeding brake system
   b. Clean and adjust disc brake assembly
   c. Clean and adjust the drum brake assembly

6. PERFORM WHEEL & TYRES WORK
   a. Checking wheel jam & slipping of clutch.
   b. Repairing a punchered tube
   c. Repairing tubeless tyre puncture
   d. Wheel balancing

7. PERFORM ELECTRICAL AND ELECTRONICS
   a. Test battery
   b. Check cranking voltage and charging voltage

c. Carrying out checks on starting system
d. Carrying out checks on Alternator unit,
e. Tune horn
f. Replace head light and tail lights
g. Align head light
h. Test electrical components for its proper functioning
i. Remove and refit sensors
j. Inspect electrical gauges

8. SERVICE INTAKE, EXHAUST AND EMISSION SYSTEM
   a. Remove, clean and refit intake and exhaust manifold
   b. Service secondary air induction system

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

7. LEARNING OUTCOME WITH ASSESSMENT CRITERIA

GENERIC LEARNING OUTCOME	
LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
1. Recognize & comply safe working practices, environment regulation and housekeeping.	1. 1. Follow and maintain procedures to achieve a safe working environment in line with occupational health and safety regulations and requirements.
	1. 2. Recognize and report all unsafe situations according to site policy.
	1. 3. Identify and take necessary precautions on fire and safety hazards and report according to site policy and procedures.
	1. 4. Identify, handle and store / dispose off dangerous/unsalvageable goods and substances according to site policy and procedures following safety regulations and requirements.
	1. 5. Identify and observe site policies and procedures in regard to illness or accident.
	1. 6. Identify safety alarms accurately.
	1. 7. Report supervisor/ Competent of authority in the event of accident or sickness of any staff and record accident details correctly according to site accident/injury procedures.
	1. 8. Identify and observe site evacuation procedures according to site policy.
	1. 9. Identify Personal Productive Equipment (PPE) and use the same as per related working environment.
	1. 10. Identify basic first aid and use them under different circumstances.
	1. 11. Identify different fire extinguisher and use the same as per requirement.
	1. 12. Identify environmental pollution & contribute to avoidance of same.
	1. 13. Take opportunities to use energy and materials in an environmentally friendly manner
	1. 14. Avoid waste and dispose waste as per procedure
	1. 15. Recognize different components of 5S and apply the same in the working environment.
2. Understand, explain different mathematical calculation & science in the field of study including basic	2.1 Explain concept of basic science related to the field such as Material science, Mass, weight, density, speed, velocity, heat & temperature, force, motion, pressure, heat treatment, centre of gravity, friction.

electrical and	
apply in day to day work.*[Different mathematical calculation & science -Work, Power & Energy, Algebra, Geometry & Mensuration, Trigonometry, Heat & Temperature, Levers & Simple machine, graph, Statistics, Centre of gravity, Power transmission, Pressure]*	2.2 Measure dimensions as per drawing
	2.3 Use scale/ tapes to measure for fitting to specification.
	2.4 Comply given tolerance.
	2.5 Prepare list of appropriate materials by interpreting detail drawings and determine quantities of such materials.
	2.6 Ensure dimensional accuracy of assembly by using different instruments/gauges.
	2.7 Explain basic electricity, insulation &earthing.
3. Interpret specifications, different engineering drawing and apply for different application in the field of work. *[Different engineering drawing-Geometrical construction, Dimensioning, Layout, Method of representation, Symbol, scales, Different Projections, Machined components & different thread forms, Assembly drawing, Sectional views, Estimation of material, Electrical & electronic symbol]*	3. 1. Read & interpret the information on drawings and apply in executing practical work.
	3. 2. Read & analyse the specification to ascertain the material requirement, tools, and machining /assembly /maintenance parameters.
	3. 3. Encounter drawings with missing/unspecified key information and make own calculations to fill in missing dimension/parameters to carry out the work.
4. Select and ascertain measuring instrument and measure dimension of components and record data.	4.1 Select appropriate measuring instruments such as micrometers, vernier calipers, dial gauge, bevel protector and height gauge (as per tool list).
	4.2 Ascertain the functionality & correctness of the instrument.
	4.3 Measure dimension of the components & record data to analyse them with given drawing/measurement.
5. Explain the concept in productivity, quality tools, and labour welfare legislation and apply such in day to day work to improve productivity & quality.	5.1 Explain the concept of productivity and quality tools and apply during execution of job.
	5.2 Understand the basic concept of labour welfare legislation and adhere to responsibilities and remain sensitive towards such laws.
	5.3 Knows benefits guaranteed under various acts

6. Explain energy conservation, global warming and pollution and contribute in day to day work by optimally using available resources.	6.1 Explain the concept of energy conservation, global warming, pollution and utilize the available recourses optimally & remain sensitive to avoid environment pollution.
	6.2 Dispose waste following standard procedure.
7. Explain personnel finance, entrepreneurship and manage/organize related task in day to day work for personal & societal growth.	7. 1. Explain personnel finance and entrepreneurship.
	7. 2. Explain role of Various Schemes and Institutes for self-employment i.e. DIC, SIDA, SISI, NSIC, SIDO, Idea for financing/ non financing support agencies to familiarizes with the Policies /Programmes & procedure & the available scheme.
	7. 3. Prepare Project report to become an entrepreneur for submission to financial institutions.
8. Plan and organize the work related to the occupation.	8. 1. Use documents, drawings and recognize hazards in the work site.
	8. 2. Plan workplace/ assembly location with due consideration to operational stipulation
	8. 3. Communicate effectively with others and plan project tasks
	8. 4. Assign roles and responsibilities of the co-trainees for execution of the task effectively and monitor the same.
SPECIFIC OUTCOME	
Block-I (Section:10 in the competency based curriculum)	
*Assessment Criteria i.e. the standard of performance, for each specific learning outcome mentioned under **Block – I** (section: 10) must ensure that the trainee works in familiar, predictable, routine, situation of clear choice. Assessment criteria should broadly cover the aspect of **Planning** (Identify, ascertain, etc.); **Execution** apply factual knowledge of field of knowledge, recall and demonstrate practical skill during performing the work in routine and repetitive in narrow range of application, using appropriate rule and tool, complying with basic arithmetic and algebraic principles and language to communicate in written or oral with required clarity; **Checking/ Testing** to ensure functionality during the assessment of each outcome. The assessments parameters must also ascertain that the candidate is responsible for his/her own work and learning.*	

8. SYLLABUS

BASIC TRAINING (Block – I)

Duration: (03) Three Months

Week No.	Professional Skills (Trade Practical)	Professional Knowledge (Trade Theory)
1.	GENERAL SHOP SAFETY First aid and Fire safety, Use of fire extinguishers. Identify fuels, oils and chemicals used in the engines and accessories-handling of shop safety equipment-handling of safety devices-first aid- practice on hazard waste disposal.	**Occupational Safety & Health** Importance of Safety and general Precautions to be observed in the shop. Basic first aid, safety signs - for Danger, Warning, caution & personal safety message. Safe handling of Fuel Spillage, Fire extinguishers used for different types of fire. Safe disposal of toxic dust, safe handling and Electrical safety tips.
2.	MEASURING SYSTEMS AND MEASUREMENTS Practice on measuring on the given jobs- measuring space with a feeler gauge- measuring the given jobs with precision measuring instruments-checking external and internal diameter and run outs-measure straightness on the given job.	Measuring systems and types- description of steel rule- description of feeler gauge-constructional details and working principle of precision measuring instruments like Vernier caliper, micrometer, bore gauge and dial gauge-description of surface plate and V blocks-importance of correct roundness-surface finish and its importance.
3.	BASIC HAND TOOLS Practice on marking and cutting of a given job- file the job to bring required size- practice on drilling, tapping and dying- reaming practice- repair damaged threads. Exercise on using impact wrenches	Details of various types of marking and cutting tools- punch, scriber, hammer and mallets, hack saw frame and blade, chisels etc. – marking media-description of work holding devices like vices- details of various drill bits- description and types of drilling machines- details of taps, dies and reamers- details of screw extractors-details of bench grinders- safety precautions to be observed while working with hand tools and lifting & carrying components and equipment. Description of Power tools and equipment.

4.	FASTENERS AND BEARINGS Practice on general cleaning, checking and on loosening and tightening of various types of screwing joints using screwing tools. Removal of broken stud /bolt from blind hole. Remove and replace bearings from the given jobs.	Threads- thread categorization- types of threads- types of screwed joints- types of nuts- property classes of bolts- screw locking arrangements- types and description of screwing tools- description and types different types of bearings. Fundamentals of Hydraulics & Pneumatics
5	BASIC ELECTRICAL AND ELECTRONICS Identify and interpret electrical/electronic system concern. Practice on measuring circuit voltage, ampere and resistance. Practice on measuring voltage drop. Practice on installing crimp connector and terminal end. Practice on soldering wires. Practice on testing fuses and relays- test diodes	General principles of electrical engineering- structure of atoms- voltage- current- fuses- electrical conduction- current direction- types of current- voltage drop- resistance- PTC and NTC resistors- types of resistors- ohm's law- resistor circuits- electro magnetism- electromagnetic induction- description of multimeter- function and types of relays- semiconductors- N type and P type semiconductors- description of diodes and transistors. Safety precautions to be observed while working with electrical equipment.
6	Identification of different type of Vehicle. Demonstration of vehicle specification data; Identification of vehicle information Number (VIN). Identification of major components of vehicle Demonstration of Garage, Service station equipment.- Vehicle hoists – Two post and four post hoist, Engine hoists, Jacks**,** Stands. Water wash a vehicle	Auto Industry - History, leading manufacturers, development in vehicle industry, trends, new product. Definition: - Classification of vehicles on the basis of load, as per central motor vehicle rule, wheels, final drive, and fuel used, axles, position of engine and steering transmission, body and load. Brief description and uses of Vehicle hoists – Two post and four post hoist, Engine hoists, Jacks**,** Stands. Water washer- description and types- precautions to be observed while water washing a vehicle.
7	Identification of major components of engine and its accessories.	Introduction to Engine: Description of internal & external combustion engines, Classification of IC

	Different types of Starting and Stopping Methods of Engine.	engines, Principle & working of 2&4-stroke diesel engine (Compression ignition Engine (C.I)**)** &spark ignition engine (S.I) **,** differentiate between 2-stroke and 4 stroke, C.I engine and S.I Engine, Direct injection and Indirect injection. Technical terms used in engine, Engine specification.
8	BATTERY Remove and connect battery terminal from a battery- clean terminals- check voltage of a battery- check cranking voltage- check charging voltage- top up distilled water up to the level- connecting two batteries in series- charging a battery – test battery- specific gravity test.	Purpose of battery- types- construction and working principle of a lead acid battery- maintenance free batteries- IBS- battery ratings- battery charging methods. Description on starting and Charging system. Description of Lighting system in reading Instrument panel light. Study of sensors in Vehicle.
9	Check and top up coolant, and brake oil level-check vacuum and fuel hoses for any damages and leaks. Check all lights, switches and horn Wheel removing and refitting procedure. Tyre removing, refitting, checking & inflating procedure	Functions and components of Cooling and lubrication system of vehicle. Construction & specification of tyres. Tyre repair materials. Causes of damage of tyres and their procedure. Wheel removing and refitting procedure. Tyre removing, refitting, checking & inflating procedure. Causes of damage of tyres.
10	Preliminary checking of the vehicle before driving. Practice in observing different gauges and meter while driving. Steering practice – Push and Pull method. Hand over hand method Straight driving on an open ground	Motor Vehicle Act., Driving road rules. Knowledge about log book and different papers related to vehicles Drivers responsibility on the road Road Traffic signal and hand signal. Local road map reading. Speed regulation on city roads Precautions during Pre-Driving Check- Before sitting/After sitting on driver seat. Adjustment of Rear view mirror. Steering control- operation, functions of its each components.
10.	Practice on Clutch Biting Point Practice in changing gear from	Working principles of Transmission system and functions of its each components.

	a) Low gear to high gear and b) High gear to low gear Adjust free play in the accelerator, brake and clutch levers and greasing Straight driving on wide road	Understanding the needs of Brakes. Hand brakes. Different types of Brakes and its functions. Anticipation, Judgment, and road positioning according to other users.
11	Practice in reverse driving Practice in parking vehicle. Parallel parking and diagonal parking. Driving practice at Intersection. Practice in driving steep slope and downhill.	Precautions to be taken at the time of reversing the vehicle. Locating reverse gear in sitting position, Speed control , Steering in reverse gear(Straight) Parking precautions and positioning according to road users. Methods of parking a) Parallel parking, Angular parking, Perpendicular parking facing uphill , Parking facing downhill, Common errors Precautions while applying Accelerator (Gradual/Sudden)
12	Practice on overtaking another vehicle.	Mirror Signal and Manoeuvres (MSM) and Position speed and Look Zone of vision. Manoeuvres Merging and diverging manoeuvres (a) Turning manoeuvres to left and right (b) 3- point turn and U-turn (c) Overtaking stationary vehicles , moving Vehicles in left side and right side.
13	**Revision& Internal Assessment**	

Note: - *More emphasis to be given on video/real-life pictures during theoretical classes. Some real-life pictures/videos of related industry operations may be shown to the trainees to give a feel of Industry and their future assignment.*

9. SYLLABUS - CORE SKILLS

9.1 WORKSHOP CALCULATION SCIENCE & ENGINEERING DRAWING:

Block – I		
Sl. No.	**Workshop Calculation and Science (Duration: - 20 hrs.)**	**Engineering Drawing (Duration : - 30 hrs.)**
1.	**Unit**: Systems of unit- FPS, CGS, MKS/SI unit, unit of length, Mass and time, Conversion of units	**Engineering Drawing: Introduction and its importance** - Viewing of engineering drawing sheets. - Method of Folding of printed Drawing Sheet as per BIS SP:46-2003
2.	**Fractions**: Fractions, Decimal fraction, Addition, Subtraction, Multiplication and Division of Fractions and Decimals, conversion of Fraction to Decimal and vice versa. Simple problems using Calculator.	**Drawing Instruments : their uses** Drawing board, T-Square, Drafter (Drafting M/c), Set Squares, Protractor, Drawing Instrument Box (Compass, Dividers, Scale, Diagonal Scales etc.), Pencils of different Grades, Drawing pins / Clips.
3.	**Properties of Material** : properties - Physical & Mechanical, Types –Ferrous & Non-Ferrous, difference between Ferrous and Non-Ferrous metals, introduction of Iron, Cast Iron, Wrought Iron, Steel, difference between Iron and Steel, Alloy steel, carbon steel, stainless steel, Non-Ferrous Alloys.	**Lines :** - Definition, types and applications in Drawing as per BIS SP:46-2003 - Classification of lines (Hidden, centre, construction, Extension, Dimension, Section) - Drawing lines of given length (Straight, curved) - Drawing of parallel lines, perpendicular line - Methods of Division of line segment
4.	**Average:** Problems of Average. **Ratio & Proportion**: Simple calculation on related problems.	**Drawing of Geometrical Figures:** Drawing practice on: - Angle: Measurement and its types, method of bisecting. - Triangle -different types - Rectangle, Square, Rhombus, Parallelogram. - Circle and its elements.
5.	**Mass, Weight and Density**: Mass, Unit of Mass, Weight, difference between mass and weight, Density, unit of density.	**Dimensioning:** - Definition, types and methods of dimensioning (functional, non-functional and auxiliary) - Types of arrowhead

		- Leader Line with text
6.	**Percentage**: Introduction, Simple calculation. Changing percentage to decimal and fraction and vice-versa.	**Free hand drawing of** - Lines, polygons, ellipse, etc. - geometrical figures and blocks with dimension - Transferring measurement from the given object to the free hand sketches.
7.	- Forces definition. - Definition and example of compressive, tensile, shear forces, axial and tangential forces. Stress, strain, ultimate strength, factor of safety for MS. **Speed and Velocity**: Rest and motion, speed, velocity, difference between speed and velocity, acceleration, retardation.	**Method of presentation of Engineering Drawing** - Pictorial View - Orthogonal View - Isometric view
8.	**Mensuration:** Area and perimeter of square, rectangle, parallelogram, triangle, circle, semi circle. Volume of solids – cube, cuboids, cylinder and Sphere. Surface area of solids – cube, cuboids, cylinder and Sphere. - Area of cut-out regular surfaces: circle and segment and sector of circle. - Volume of cut-out solids: hollow cylinders, frustum of cone, block section. - Volume of simple solid blocks.	**Symbolic Representation (as per BIS SP:46-2003) of :** - Fastener (Rivets, Bolts and Nuts) - Bars and profile sections - Weld, brazed and soldered joints. - Electrical and electronics element - Piping joints and fittings
9.	**Algebra**: Addition, Subtraction, Multiplication, Division, Algebraic formula, Linear equations (with two variables). - Circular Motion: Relation between circular motion and Linear motion, Centrifugal force, Centripetal force.	**Dimensioning practice:** - Position of dimensioning (unidirectional, aligned, oblique as per BIS SP:46-2003) - Symbols preceding the value of dimension and dimensional tolerance.
10.	**Work, Power and Energy**: work, unit of work, power, unit of power, Horse power, mechanical efficiency, energy, use of energy, potential and kinetic energy, examples of potential energy and kinetic energy.	**Construction of Geometrical Drawing Figures:** - Polygons and their values of included angles. - Conic Sections (Ellipse)
11.	**Trigonometry:** Trigonometric ratios,	**Projections:**

	Trigonometric tables. - Finding the value of unknown sides and angles of a triangle by Trigonometrical method. - Finding height and distance by trigonometry **Friction** and its application in Workshop practice	- Concept of axes plane and quadrant. - Orthographic projections - Method of first angle and third angle projections (definition and difference) - Symbol of 1st angle and 3rd angle projection as per IS specification. Drawing of Orthographic projection from isometric/3D view of blocks
12.	**Heat & Temperature**: Heat and temperature, their units, difference between heat and temperature, boiling point, melting point, scale of temperature, relation between different scale of temperature, Thermometer, pyrometer, transmission of heat, conduction, convection, radiation.	Machined components; concept of fillet & chamfer; surface finish symbols.
13.	**Basic Electricity**: Introduction, use of electricity, Types of current_ AC, DC, their comparison, voltage, resistance, their units. Conductor, insulator, Types of connections – series, parallel, electric power, Horse power, energy, unit of electrical energy. Concept of earthing. **Heat treatment** – Necessity, different common types of Heat treatment. **Graph:** - Read images, graphs, diagrams – bar chart, pie chart. - Graphs: abscissa and ordinates, graphs of straight line, related to two sets of varying quantities.	Screw thread, their standard forms as per BIS, external and internal thread, conventions on the features for drawing as per BIS.
14.	**Transmission of power:** By belt, pulleys & gear drive.	- Reading & interpretation of assembly drawing and detailing.
15.	**Concept of pressure** – units of pressure, atmospheric pressure, gauge pressure – gauges used for measuring pressure. **Introduction to pneumatics & hydraulics systems.** Solution of NCVT test papers	- Reading of drawing. Simple exercises related to missing lines, dimensions and views. How to make queries. - Simple exercises related to trade related symbols. - Solution of NCVT test papers.

9.2 EMPLOYABILITY SKILLS

(DURATION: - 55 HRS.)

Topic No.	Topic	Duration (in hours)
	English Literacy	**7**
1.	**Reading** Reading and understanding simple sentences about self, work and environment	
2.	**Writing** Construction of simple sentences Writing simple English	
3.	**Speaking / Spoken English** Speaking with preparation on self, on family, on friends/ classmates, on know, picture reading gain confidence through role-playing and discussions on current happening job description, asking about someone's job habitual actions. Taking messages, passing messages on and filling in message forms Greeting and introductions office hospitality, Resumes or curriculum vita essential parts, letters of application reference to previous communication.	
	I.T. Literacy	**10**
1.	**Basics of Computer** Introduction, Computer and its applications, Hardware and peripherals, Switching on-Starting and shutting down of computer.	
2.	**Word processing and Worksheet** Basic operating of Word Processing, Creating, opening and closing Documents, use of shortcuts, Creating and Editing of Text, Formatting the Text, Insertion & creation of Tables. Printing document. Basics of Excel worksheet, understanding basic commands, creating simple worksheets, understanding sample worksheets, use of simple formulas and functions, Printing of simple excel sheets. Use of External memory like pen drive, CD, DVD etc,	
3.	**Computer Networking and INTERNET** Accessing the Internet using Web Browser, Downloading and Printing Web Pages, Opening an email account and use of email. Social media sites and its implication.	
	Communication Skill	**18**
1	**Introduction to Communication Skills** Communication and its importance Principles of Effective communication Types of communication - verbal, nonverbal, written, email, talking on phone.	

	Nonverbal communication - components-Para-language Body - language Barriers to communication and dealing with barriers.	
2	**Listening Skills** Listening-hearing and listening, effective listening, barriers to effective listening guidelines for effective listening.	
3	**Motivational Training** Characteristics Essential to Achieving Success The Power of Positive Attitude Self awareness Importance of Commitment Ethics and Values Ways to Motivate Oneself Personal Goal setting and Employability Planning.	
4	**Facing Interviews** Manners, Etiquettes, Dress code for an interview Do's & Don'ts for an interview	
	Entrepreneurship skill	**8**
1.	**Concept of Entrepreneurship** Entrepreneurship- Entrepreneurship - Enterprises:-Conceptual issue. Source of business ideas, Entrepreneurial opportunities, The process of setting up a business.	
2.	**Institutions Support** Role of Various Schemes and Institutes for self-employment i.e. DIC, SIDA, SISI, NSIC, SIDO, Idea for financing/ non financing support agencies to familiarizes with the Policies /Programmes & procedure & the available scheme.	
	Productivity	
1.	**Productivity** Definition, Necessity.	
2.	**Affecting Factors** Skills, Working Aids, Automation, Environment, Motivation How improves or slows down.	
3.	**Personal Finance Management** Banking processes, Handling ATM, KYC registration, safe cash handling, Personal risk and Insurance.	
	Occupational Safety, Health & Environment Education	**6**
1	**Safety & Health** Introduction to Occupational Safety and Health importance of safety and health at workplace.	

2	**Occupational Hazards** Basic Hazards, Chemical Hazards, Vibro-acoustic Hazards, Mechanical Hazards, Electrical Hazards, Thermal Hazards. Occupational health, Occupational hygienic, Occupational Diseases/ Disorders & its prevention.	
3	**Accident & safety** Basic principles for protective equipment. Accident Prevention techniques - control of accidents andsafety measures.	
4	**First Aid** Care of injured & Sick at the workplaces, First-Aid & Transportation of sick person	
	Labour Welfare Legislation	
1	**Welfare Acts** Benefits guaranteed under various acts- Factories Act, Apprenticeship Act, Employees State Insurance Act (ESI), Employees Provident Fund Act.	
	Quality Tools	**6**
1.	**Quality Consciousness :** Meaning of quality, Quality Characteristic	
2.	**Quality Circles :** Definition, Advantage of small group activity, objectives of quality Circle, Roles and function of Quality Circles in Organization, Operation of Quality circle. Approaches to starting Quality Circles, Steps for continuation Quality Circles.	
3.	**House Keeping :** Purpose of Housekeeping, Practice of good Housekeeping.	
4.	**Quality Tools** Basic quality tools with a few examples	

10. DETAILS OF COMPETENCIES (ON-JOBTRAINING)

The **competencies/ specific outcomes** on completion of On-Job Training are detailed below: -

Block – I

1. PERFORM BASIC MAINTENANCE
   a. Check electrical bulbs and components for proper working
   b. Lubricating the vehicle moving components
   c. Check Oil level in different unit.
   e. Adjust pedal/lever free play
   f. Inflate tyres

2. PERFORM SERVICE COOLING SYSTEM
   a. Perform cooling system pressure tests, inspect and test radiator, pressure cap, coolant recovery tank, and hoses.
   b. Inspect, refit and adjust drive belts, and pulleys; check pulley and belt alignment
   c. Inspect, test, and refit thermostat
   d. Inspect and test fan

3. PERFORM SERVICE LUBRICATING SYSTEM
   a. Change engine oil and filter
   b. Flush lubricating system

4. IDENTIFY ENGINE PROBLEMS and RECTIFY.
   a. Setting injection timing
   b. Service and test injectors

5. PERFORM BRAKE SYSTEM
   a. Checking of brake fluid level Bleeding brake system
   b. Clean and adjust disc brake assembly
   c. Clean and adjust the drum brake assembly

6. PERFORM WHEEL & TYRES WORK
   a. Checking wheel jam & slipping of clutch.
   b. Repairing a punchered tube
   c. Repairing tubeless tyre puncture
   d. Wheel balancing

7. PERFORM ELECTRICAL AND ELECTRONICS
   a. Test battery
   b. Check cranking voltage and charging voltage
   c. Carrying out checks on starting system
   d. Carrying out checks on Alternator unit,
   e. Tune horn
   f. Replace head light and tail lights
   g. Align head light
   h. Test electrical components for its proper functioning
   i. Remove and refit sensors
   j. Inspect electrical gauges

8. SERVICE INTAKE, EXHAUST AND EMISSION SYSTEM
   a. Remove, clean and refit intake and exhaust manifold
   b. Service secondary air induction system

Note:

1. Industry must ensure that above mentioned competencies are achieved by the trainees during their on job training.

2. In addition to above competencies/ outcomes industry may impart additional training relevant to the specific industry.

ANNEXURE – I

INFRASTRUCTURE FOR PROFESSIONAL SKILL & PROFESSIONAL KNOWLEDGE

DRIVER-CUM AUTO MECHANIC (LMV) TRADE			
LIST OF TOOLS AND EQUIPMENT for Basic Training (For 20 Apprentices)			
A. TRAINEES TOOL KIT (For each additional unit trainees tool kit Sl. 1-18 is required additionally)			
Sl. no.	**Name of the Tool &Equipments**	**Specification**	**Quantity**
1.	D.E. spanner	set 4-32mm	16 sets
2.	Ring spanner	set 4-32 mm	16 sets
3.	Socket spanner	set 4-32 mm	16 sets
4.	Deep socket	set 4-32 mm	16 sets
5.	Screw driver	flat head small and big size	16 nos.
6.	Screw driver	Philips type small and big size	16 nos.
7.	Impact screw driver set	Standard	16 sets
8.	Flat chisel	Standard	16 nos.
9.	Allen key set	Standard	16 nos.
10.	Feeler gauge	Standard	16 nos.
11.	Ball peen hammer	0.5kg	16 nos.
12.	Mallet	Standard	16 nos.
13.	Hand file	20 cm	16 nos.
14.	Scriber	15cm	16 nos.
15.	Steel rule	30 cm	16 nos.
16.	Centre punch	10 x 100 mm	16 nos.
17.	Tools box with lock and key	Standard	16 nos.
18.	Plier combination	Standard	16 nos.
19.	Wire cutter	Standard	16 nos.
20.	Multi meter	Standard	16 nos.
21.	Continuity tester	Standard	16 nos.

22.	T spanner	8mm	16 nos.
23.	T spanner	10mm	16 nos.
24.	T spanner	12 mm	16 nos.
B : INSTRUMENTS & GENERAL SHOP OUTFIT			
25.	Vernier caliper	30 cm	01 no
26.	Outside micrometer	0-25mm	01 no
27.	Outside micrometer	25-50mm	01 no
28.	Outside micrometer	50-75mm	01 no
29.	Outside micrometer	75-100mm	01 no
30.	Outside micrometer	100-125 mm	01 no
31.	Outside micrometer	125-150mm	01 no
32.	Inside micrometer	25-150 mm	01 no
33.	Dial test indicator	0.01mm accuracy	01 no
34.	Stand for dial gauge	with magnetic base	01 no
35.	Surface plate	with stand	01 no
36.	V block	suitable to hold components	02 nos.
37.	Vice fitted on table	Standard	04 nos.
38.	Battery charger	Standard	01 no
39.	Caliper inside	spring type 15 cm	04 nos.
40.	Caliper outside	spring type 15 cm	04 nos.
41.	Cleaning tray	plastic made	10 nos.
42.	Divider	spring type	04 nos.
43.	Electrical soldering iron	Standard	04 nos.
44.	Try square	15 cm	14 nos.
45.	Files	assorted types and sizes	01 set each
46.	Hack saw frame	Standard	04 nos.
47.	Hand operated crimping tool	Standard	01 no
48.	Oil can	0.5 litre capacity	10 nos.
49.	Piston ring compressor	Standard	01 no
50.	Piston ring expander	Standard	01 no
51.	Piston ring groove cleaner	standard	01 no
52.	Valve spring compressor	Standard	01 no
53.	Bearing puller	Standard	01 set
54.	Bearing installer	Standard	01 set
55.	Oil seal installer	Standard	01 set

Driver-cum Auto Mechanic (LMV)

56.	Compression gauge petrol	Standard	01 no
57.	Compression gauge diesel	Standard	01 no
58.	Vacuum gauge	Standard	01 no
59.	Magneto puller for different vehicles	Standard	01 no each
60.	Clutch puller for different vehicles	Standard	01 no each
61.	Circlip plier internal	Standard	01 no
62.	Circlip plier external	Standard	01 no
63.	Tachometer	Standard	01 no
64.	Timing light	Standard	01 no
65.	Spark plug spanner for different vehicles	Standard	01 set
66.	CDI and ignition coil tester	Standard	01 no
67.	Greasilator	Standard	01 no
68.	Special tools for removing and refitting variable belt transmission	Standard	01 set for each vehicle
69.	Special tools for removing and refitting steering components	Standard	01 set for each vehicle
70.	Special tools for removing and refitting front fork components	Standard	01 set for each vehicle
71.	Hydraulic brake bleeder unit	Standard	01 no
72.	Taps and die set	Standard	01 set
73.	Hand reamer of different sizes	Standard	01set
74.	Hand drilling machine with various size drill bits	Standard	01 set
75.	Stud remover	Standard	04 nos.
76.	Stud extractor ezy out	Standard	04 nos.
77.	Letter punch	Standard	01 set
78.	Number punch	Standard	01 set
79.	Scraper flat	Standard	01 no
80.	Thread pitch gauge	Standard	01 set
81.	Torque wrench able to tighten all nuts and studs	Standard	01 set each
82.	Tyre pressure gauge	Standard	01 no

Driver-cum Auto Mechanic (LMV)

83.	Grip plier	Standard	04 nos
84.	Spark plug cleaner	Standard	01 no
85.	Special tools for carburetor service	Standard	01 set
86.	Spring tension tester	Standard	01 no
GENERAL MACHINERY			
87.	Cut section model of LMV showing all components with electric drive	Standard	01 no
88.	4 stroke engine for dismantling and assembling	Standard	01 no
89.	Jeep	Standard	01 no.
90.	Light Motor Vehicle running condition	Standard	01 no.
91.	Light Motor Vehicle (With Double clutch and Double brake pedal)	Standard	01 no.
92.	Traffic Signals board	Standard	01 no.
93.	Air compressor with pneumatic pipe lines	Standard	01 no
94.	Car washer	Standard	01 no
95.	bench grinding machine	Standard	01 no
96.	4 stroke engine for dismantling and assembling	Standard	01 no

INFRASTRUCTURE FOR WORKSHOP CALCULATION & SCIENCE AND ENGINEERING DRAWING

TRADE: DRIVER-CUM AUTO MECHANIC (LMV) TRADE

LIST OF TOOLS& EQUIPMENTS FOR -20APPRENTICES

1) **Space Norms** : 45 Sq. m.(For Engineering Drawing)

2) Infrastructure:

A : TRAINEES TOOL KIT:-			
Sl. No.	**Name of the items**	**Specification**	**Quantity**
1.	Draughtsman drawing instrument box		20+1 set
2.	Set square celluloid 45^o	(250 X 1.5 mm)	20+1 set
3.	Set square celluloid 30^o-60^o	(250 X 1.5 mm)	20+1 set
4.	Mini drafter		20+1 set
5.	Drawing board IS: 1444	(700mm x500 mm)	20+1 set
B : Furniture Required			
Sl. No.	**Name of the items**	**Specification**	**Quantity**
1	Drawing Board		20
2	Models : Solid & cut section		as required
3	Drawing Table for trainees		as required
4	Stool for trainees		as required
5	Cupboard	(big)	01
6	White Board	(size: 8ft. x 4ft.)	01
7	Trainer's Table		01
8	Trainer's Chair		01

TOOLS & EQUIPMENTS FOR EMPLOYABILITY SKILLS		
Sl. No.	**Name of the Equipment**	**Quantity**
1.	Computer (PC) with latest configurations and Internet connection with standard operating system and standard word processor and worksheet software	10 Nos.
2.	UPS - 500VA	10 Nos.
3.	Scanner cum Printer	1 No.
4.	Computer Tables	10 Nos.
5.	Computer Chairs	20 Nos.
6.	LCD Projector	1 No.
7.	White Board 1200mm x 900mm	1 No.
Note: - Above Tools & Equipments not required, if Computer LAB is available in the institute.		

FORMAT FOR INTERNAL ASSESSMENT

Name & Address of the Assessor :			**Year of Enrollment :**
Name & Address of ITI (Govt./Pvt.) :			**Date of Assessment :**
Name & Address of the Industry :			**Assessment location: Industry / ITI**
Trade Name :	**Semester:**		**Duration of the Trade/course:**
Learning Outcome:			

Sl. No	**Candidate Name**	**Father's/Mother's Name**	Safety consciousness	Workplace hygiene	Attendance/ Punctuality	Ability to follow Manuals/ Written instructions	Application of Knowledge	Skills to handle tools & equipment	Economical use of materials	Speed in doing work	Quality in workmanship	VIVA	**Total internal assessment Marks**	**Result (Y/N)**
Maximum Marks (Total 100 Marks)			**15**	**5**	**10**	**5**	**10**	**10**	**5**	**10**	**15**	**15**		
1														
2														