Model Curriculum

NOS Name: Basic concepts of Commercial vehicle service and Repair

NOS Code: ASC/N1316

NOS Version: 1.0

NSQF Level: 3.5

Automotive Skills Development Council | E-113, Okhla Industrial Estate, Phase- III,
New Delhi-110020

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Training Parameters

Sector	Automotive
Sub-Sector	Service and repair
Occupation	Service and repair
Country	India
NSQF Level	3.5
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7231.0107
Minimum Educational Qualification and Experience	Continuous education after 11th Class Or 10th grade pass + 1 year NAC/NTC Or 10th Grade pass with 1.5 years of relevant experience Or 9th Grade pass with 3 years of relevant experience Or 8th Grade pass with 4.5 years of relevant experience
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 years
Last Reviewed On	18-02-2025
Next Review Date	18-02-2028
NSQC Approval Date	18-02-2025
Model Curriculum Creation Date	18-02-2025
Model Curriculum Valid Up to Date	18-02-2028
Minimum Duration of the Course	60 Hours 00 Minutes
Maximum Duration of the Course	60 Hours 00 Minutes

Program Overview

This section summarizes the end objectives of the program along with its duration.

Training Outcomes

At the end of the program, the learner should have acquired the listed knowledge and skills.

- Assist the technician in diagnosing and repairing faults in light, medium and heavy-duty vehicles.
- Perform routine service/maintenance/minor repairs of the light, medium and heavy-duty vehicles.

Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
ASC/N1316 – Basic course in vehicle service and repair NOS Version No. – 1.0 NSQF Level – 3	**20:00**	**40:00**			**60:00**
Module 1: Introduction to course	01:00	00:00			01:00
Module 2: Preparatory activities for vehicle servicing and repairing	07:00	5:00			12:00
Module 3: Servicing and repairing of vehicle	08:00	27:00			35:00
Module 4: Post-servicing activities	04:00	8:00			12:00
Total Duration	**20:00**	**40:00**			**60:00**

Module Details

Module 1: Introduction to course

Bridge module

Terminal Outcomes:

- Discuss about course structure and its importance.

Duration: *<01:00>*	**Duration**: *<00:00>*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe vehicle servicing and repairing process. • Elaborate standard operating procedures (SOPs) regarding vehicle servicing and repairing • Discuss need of service technician in industry.	
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Module 2: Preparatory activities for vehicle servicing and repairing

Mapped to ASC/N1316, v1.0

Terminal Outcomes:

- Identify tools and equipment required for servicing and repairing.
- Demonstrate preparatory activities for diagnosing faults and repairing of a vehicle.

Duration: *<07:00>*	**Duration**: *<05:00>*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe VIN / chassis number & engine number codification • List various components /aggregates and the manufacturer's specifications of light, medium and heavy-duty vehicle. • Describe basic technology used in and functioning of various systems and components of the heavy vehicle such as engine, transmission, batteries, body management system, telematics, brake system, air-conditioning systems, active & passive safety system, media and other systems • Describe various types of engines i.e. petrol, diesel, CNG etc. in light, medium and heavy-duty vehicles • Discuss basic technology used, functioning and interconnections of various systems and components of light, medium and heavy-duty vehicle. • Recall vehicle terminology like wheel base, ground clearance, front and rear O/H, wheel track front & rear, overall length, overall height • Recall engine terminology i.e. strokes length/ bore diameter/ number of cylinder/ valve mechanism/ fuels and fuel system • Describe basics of electricity - voltage, current & resistance • Describe series and parallel circuit, • Discuss various sources of information available for assessing service and repair requirements of the vehicle. • Discuss standard schedules and checklists recommended by the OEM/ auto component manufacturer for servicing of light, medium and heavy-duty vehicle. • List the types of tools and equipment used in different processes of a light, medium and heavy-duty vehicle maintenance. • List the activities need to perform for preparing a light, medium and heavy-duty vehicle for fault identification and repairing work. • Discuss the safety precautions need to follow during servicing and repairing of a light, medium and heavy-duty vehicle.	• Show how to assist senior technician in positioning the vehicle on a suitable platform for service, maintenance and repair of light, medium and heavy-duty vehicle. • Demonstrate organizational procedure of arranging the required special service tools, measuring instruments, vehicle parts, gauges, fixtures, workshop supplies, etc. • Apply appropriate ways to check the tools, measuring instruments, vehicle parts, gauges, fixtures etc. for any defects and proper functioning • Apply appropriate ways to report the malfunctioning, if any, in tools/equipment to the concerned person for rectification • Show how to prepare the work area by cleaning and placement of tools/equipment in an organised manner
Classroom Aids:	

Whiteboard, marker pen, projector
Tools, Equipment and Other Requirements
• PPT's, teaching aids, job card, light, medium and heavy-duty vehicle • Vehicle, various body parts, engine, tools and equipment, material, consumables, components/aggregates, lubricants, grease, oil, etc. • Pressure indicators: fuel pressure testers, manifold gauge sets, oil pressure gauges, tire pressure gauges etc., pullers: ball joint separators, bearing pullers, gear puller tools, slide hammers etc., trim or moulding tools: carbon scrapers, gasket scrapers, scrapers, spoons etc., measuring equipment: vernier calipers, micrometre, feeler gauges, multi-metre, flow metre, temp gauge, dial gauge etc., other tools: hand tools, power tools, lifting/jacking equipment, tensioning equipment, security activator etc., tools for other tasks such as cleaning of vehicles, brake bleeding, wheel alignment, AC gas charging etc. • **Safety materials**: Fire extinguisher, safety gloves, aprons, safety glasses, helmet, safety shoe and first-aid kit • **Cleaning material**: Tip cleaner, wire brush (M.S.), cleaning agents, cleaning cloth, waste container, dust pan and brush set, liquid soap, hand towel

Module 3: Servicing and repairing of vehicle

Mapped to ASC/N1316, v1.0

Terminal Outcomes:

- Demonstrate how to use different techniques for diagnosing faults and repairing of a light, medium and heavy-duty vehicle.

Duration: *<08:00>*	**Duration**: *<27:00>*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe emission norms and engine management system basics • Discuss need of periodic maintenance • Discuss importance of lubrication chart • Discuss the symptoms of technical faults, their causes and rectification procedures in a light, medium and heavy-duty vehicle. • Describe organizational/professional code of ethics and standards of practice. • Discuss the documents to be maintained w.r.t inspection, troubleshooting and diagnosis of faults. • Describe standard Operating Procedures and vehicle service manuals for repairing, servicing and using workshop tools and equipment	• Apply appropriate ways to identify the type of engine and auto component/aggregate of vehicle • Show how to conduct visual inspection of the vehicle • Apply appropriate ways to assist senior in performing routine service/maintenance (inspect/correct/adjust/clean/lubricate) in vehicle/aggregate • Demonstrate dismantling and assembling of aggregate/system like suspension system, steering system, cooling system, engine gearbox etc. • Demonstrate procedure of engine valve clearance adjustment, compression pressure test/ oil pressure test/ fan belt tension checking, clutch pedal free play adjustment and clutch pedal height adjustment, pedal stroke measurement, transmission cable adjustment and gear lever play checking, brake pedal free paly and stroke adjustments, LCRV adjustment and lift axle LSV adjustment, brake shoe removal and refitting, hub play adjustment and wheel greasing and brake adjustment - auto slack adjuster etc. • Apply appropriate ways to check electrical master board and sensor board for any faults, leakage/need of charging in battery, wiring repair requirement, faults in basic electrical & electronic components checking (Fuse, Relay, Switch & Bulb etc.) under the guidance of senior technician by using appropriate tools and equipment • Apply appropriate ways to work carefully to ensure no damage is caused to any aggregate/component
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	
• PPT's, teaching aids, job card, light, medium and heavy-duty vehicle • Vehicle, various body parts, engine, tools and equipment, material, consumables, components/aggregates, lubricants, grease, oil, etc. • Pressure indicators: fuel pressure testers, manifold gauge sets, oil pressure gauges, tire pressure gauges etc., pullers: ball joint separators, bearing pullers, gear puller tools, slide hammers etc., trim or moulding tools: carbon scrapers, gasket scrapers, scrapers, spoons etc., measuring equipment: vernier calipers, micrometre, feeler gauges, multi-metre, flow metre, temp gauge, dial	

gauge etc., other tools: hand tools, power tools, lifting/jacking equipment, tensioning equipment, security activator etc., tools for other tasks such as cleaning of vehicles, brake bleeding, wheel alignment, AC gas charging etc.

- **Safety materials**: Fire extinguisher, safety gloves, aprons, safety glasses, helmet, safety shoe and first-aid kit
- **Cleaning material**: Tip cleaner, wire brush (M.S.), cleaning agents, cleaning cloth, waste container, dust pan and brush set, liquid soap, hand towel

Module 4: Post-servicing activities

Mapped to ASC/N,1316 v1.0

Terminal Outcomes:

- Perform post-servicing activities

Duration: *<04:00>*	**Duration**: *<08:00>*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss need of checking the performance of vehicle/aggregate post repair. • Describe PDI/PMS check sheet. • List documentation required on the job regarding the basic details of repair, maintenance and service performed	• Apply appropriate ways to check the performance of vehicle/aggregate post repair • Show how to check and fill PDI/PMS check sheet as per the SOP. • Demonstrate organizational procedure of returning leftover consumable/parts, tools/equipment and report if any malfunctions are observed to the person concerned
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	
• PPT's, teaching aids, job card, light, medium and heavy-duty vehicle • Vehicle, various body parts, engine, tools and equipment, material, consumables, components/aggregates, lubricants, grease, oil, etc. • Pressure indicators: fuel pressure testers, manifold gauge sets, oil pressure gauges, tire pressure gauges etc., pullers: ball joint separators, bearing pullers, gear puller tools, slide hammers etc., trim or moulding tools: carbon scrapers, gasket scrapers, scrapers, spoons etc., measuring equipment: vernier calipers, micrometre, feeler gauges, multi-metre, flow metre, temp gauge, dial gauge etc., other tools: hand tools, power tools, lifting/jacking equipment, tensioning equipment, security activator etc., tools for other tasks such as cleaning of vehicles, brake bleeding, wheel alignment, AC gas charging etc. • **Safety materials**: Fire extinguisher, safety gloves, aprons, safety glasses, helmet, safety shoe and first-aid kit • **Cleaning material**: Tip cleaner, wire brush (M.S.), cleaning agents, cleaning cloth, waste container, dust pan and brush set, liquid soap, hand towel	

Availability of Digital Content for the Online Learning:

Course offered by	S. No	Courses	Course offered on	Link
Eicher Courses	1	Basics Of Automobiles	ASDC Website	https://courses.asdc.org.in/course/basics-of-automobile-english
	2	Basics Of Electricity	ASDC Website	https://courses.asdc.org.in/course/basics-of-electricity
	3	Measuring Tools	ASDC Website	https://courses.asdc.org.in/course/measuring-tools
	4	Advance Electricals	ASDC Website	https://courses.asdc.org.in/course/advance-electricals-english
	5	Emission Standards & BS	ASDC Website	https://courses.asdc.org.in/course/emission-standards-bs-familiarization-english
	6	Clutch & Transmission	ASDC Website	https://courses.asdc.org.in/course/clutch-transmission
	7	Steering System	ASDC Website	https://courses.asdc.org.in/course/steering-system
	8	Suspension System	ASDC Website	https://courses.asdc.org.in/course/suspension-system
	9	Brake System	ASDC Website	https://courses.asdc.org.in/course/brake-system
	10	Driveline and Axle	ASDC Website	https://courses.asdc.org.in/course/driveline-and-axle
	11	Basics of Electric Vehicle	ASDC Website	https://courses.asdc.org.in/course/basics-of-electric-vehicle-english
	12	Eicher Tipper Trucks	ASDC Website	https://courses.asdc.org.in/course/eicher-tipper-trucks-english

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
ITI	Mechanic Motor Vehicle/Mechanic Auto Electrical and Electronics/ Diesel Mechanic	4	Industry	1	Industry	NA
ITI	Mechanic Motor Vehicle/Mechanic Auto Electrical and Electronics/ Diesel Mechanic	5	Industry	0	Industry	**NA**
Diploma	Mechanical / Automobile	3	Industry	1	Industry	**NA**
Diploma	Mechanical / Automobile	4	Industry	0	Industry	**NA**
Certificate	Four Wheeler Master Technician Level 5	3	Industry	1	Industry	**NA**

Trainer Certification	
Domain Certification	**Platform Certification**
Certified for NOS "Basic concepts of Commercial vehicle service and Repair" mapped to NOS: "ASC/N1316, version 1.0". Minimum accepted score is 80%.	Certified for the Job Role: "Trainer (Vet and Skills)", mapped to the Qualification Pack: "MEP/Q2601, v2.0". The minimum accepted score as per MEPSC guidelines is 80%.

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
ITI	Mechanic Motor Vehicle/Mechanic Auto Electrical and Electronics/ Diesel Mechanic	5	Industry	1	Industry	NA
ITI	Mechanic Motor Vehicle/Mechanic Auto Electrical and Electronics/ Diesel Mechanic	6	Industry	0	Industry	**NA**
Diploma	Mechanical / Automobile	4	Industry	1	Industry	**NA**
Diploma	Mechanical / Automobile	5	Industry	0	Industry	**NA**
Certificate	Four Wheeler Master Technician Level 4.5	3	Industry	1	Industry	**NA**

Assessor Certification	
Domain Certification	**Platform Certification**
Certified for NOS "Basic concepts of Commercial vehicle service and Repair" mapped to NOS: "ASC/N1316, version 1.0". Minimum accepted score is 80%.	Certified for the Job Role: "Assessor (Vet and Skills)", mapped to the Qualification Pack: "MEP/Q2701, v2.0". The minimum accepted score as per MEPSC guidelines is 80%.

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Assessment Strategy

1. Assessment System Overview:

- Batches assigned to the assessment agencies for conducting the assessment on SDMS/SIP or email
- Assessment agencies send the assessment confirmation to VTP/TC looping SSC
- Assessment agency deploys the ToA certified Assessor for executing the assessment
- SSC monitors the assessment process & records

2. Testing Environment:

- Confirm that the centre is available at the same address as mentioned on SDMS or SIP
- Check the duration of the training.
- Check the Assessment Start and End time to be as 10 a.m. and 5 p.m.
- If the batch size is more than 30, then there should be 2 Assessors.
- Check that the allotted time to the candidates to complete Theory & Practical Assessment is correct.
- Check the mode of assessment—Online (TAB/Computer) or Offline (OMR/PP).
- Confirm the number of TABs on the ground are correct to execute the Assessment smoothly.
- Check the availability of the Lab Equipment for the particular Job Role.

3. Assessment Quality Assurance levels / Framework:

- Question papers created by the Subject Matter Experts (SME)
- Question papers created by the SME verified by the other subject Matter Experts
- Questions are mapped with NOS and PC
- Question papers are prepared considering that level 1 to 3 are for the unskilled & semi-skilled individuals, and level 4 and above are for the skilled, supervisor & higher management
- Assessor must be ToA certified & trainer must be ToT Certified
- Assessment agency must follow the assessment guidelines to conduct the assessment

4. Types of evidence or evidence-gathering protocol:

- Time-stamped & geotagged reporting of the assessor from assessment location
- Centre photographs with signboards and scheme specific branding
- Biometric or manual attendance sheet (stamped by TP) of the trainees during the training period
- Time-stamped & geotagged assessment (Theory + Viva + Practical) photographs & videos

5. Method of verification or validation:

- Surprise visit to the assessment location
- Random audit of the batch
- Random audit of any candidate

6. Method for assessment documentation, archiving, and access

- Hard copies of the documents are stored
- Soft copies of the documents & photographs of the assessment are uploaded / accessed from Cloud Storage
- Soft copies of the documents & photographs of the assessment are stored in the Hard Drives

References

Glossary

Term	Description
Declarative Knowledge	Declarative knowledge refers to facts, concepts and principles that need to be known and/or understood in order to accomplish a task or to solve a problem.
Key Learning Outcome	Key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
OJT (M)	On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on site
OJT (R)	On-the-job training (Recommended); trainees are recommended the specified hours of training on site
Procedural Knowledge	Procedural knowledge addresses how to do something, or how to perform a task. It is the ability to work, or produce a tangible work output by applying cognitive, affective or psychomotor skills.
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do upon the completion of the training.
Terminal Outcome	Terminal outcome is a statement of what a learner will know, understand and be able to do upon the completion of a module. A set of terminal outcomes help to achieve the training outcome.

Acronyms and Abbreviations

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
SOP	Standard Operating Procedure
WI	Work Instructions
PPE	Personal Protective equipment