Dette er en oversettelse av den fastsatte læreplanteksten. Læreplanen er fastsatt på Bokmål

Laid down as a regulation by the Norwegian Directorate for Education and Training on 14 December 2007 as delegated in a letter of 26 September 2005 from the Ministry of Education and Research pursuant to the Act of 17 July 1998 no. 61 relating to primary and secondary education (Education Act) Section 3-4 first paragraph.

Valid from 01.08.2008

Valid to 31.07.2017

# Purpose

Motor vehicle mechanic, light-duty vehicles shall contribute to developing competence in troubleshooting, repairing and servicing passenger cars and utility vehicles. The subject shall contribute to society's needs for transporting human beings and goods, ensuring that this is done in a safe and acceptable manner. Furthermore, the subject shall contribute to upholding standards for safety, comfort and the environment.

Learning in the subject shall help the apprentice develop competence in repairs, maintenance and diagnosis. Furthermore, learning in the subject shall lay the foundation for professional insight and the ability to make independent assessments, to cooperate and improve communication skills.

Learning in the subject shall organise practical work tasks in areas of mechanics and electrical and electronic systems. The use of digital equipment shall be included in learning. Learning in the subject shall prepare the apprentice for a working life that demands efficiency and is rewarding. Learning in the subject shall emphasise rules for environment, health and safety.

Training completed and passed in the subject will lead to a Trade Certificate. The professional title is Automobile Mechanic for Light-duty Vehicles.

# Structure

Motor vehicle mechanic, light-duty vehicles consists of four main subject areas. The main subject areas complement each other, and should be viewed in relation to one another.

**Overview of the main subject areas:**

| **Year level** | **Main subject areas** | | | |
|---|---|---|---|---|
| Vg3 / In-service training at a training establishment | Troubleshooting and diagnosis | Service and maintenance | Repairs | Communication and quality |

# Main subject areas

The main subject area covers understanding systems, troubleshooting and diagnosing mechanical, electrical and electronic systems in motor vehicles. Furthermore, the subject covers the use of tools and instruments. Gathering and interpreting information about systems in the motor vehicle is also included.

The main subject area covers service and maintenance, along with current motor vehicle regulations. Selection and use of tools, equipment and instruments is included in the main subject area. Furthermore, it covers the use of documentation for planning, execution and quality assurance.

The main subject area covers repair and replacement of the mechanical, hydraulic, electrical and electronic systems in motor vehicles. Furthermore, the subject covers repairs based on current laws and regulations.

The main subject area covers communicating with customers, colleagues and collaborators. Furthermore, the main subject area includes digital communication tools, and important aspects of environment, health and safety and quality systems. Understanding costs and expenses is included in the main subject area.

# Basic skills

Basic skills are integrated into the competence aims for this course in areas where they contribute to the development of and are a part of the basic subject competence. In Motor vehicle mechanic, light-duty vehicles, basic skills are understood as follows:

*Being able to express oneself orally and in writing* in Motor vehicle mechanic, light-duty vehicles involves communicating with customers, colleagues and collaborators about professional solutions and about the quality of work and service. It also involves documentation of work done.

*Being able to read* in Motor vehicle mechanic, light-duty vehicles involves gathering information and understanding and using workshop manuals and documents in various languages.

*Numeracy* in Motor vehicle mechanic, light-duty vehicles involves calculating and converting forces, electric sizes and make-up torques. Calculations are also included in troubleshooting and repairs.

*Digital literacy* in Motor vehicle mechanic, light-duty vehicles involves using digital and searchable documents, legislation and regulations, and technical data. Furthermore, it involves the use of digital aids and instruments for troubleshooting, diagnosing, repairing and documentation.

# Competence aims

## Troubleshooting and diagnosis

*The aims of the training are to enable the apprentice to*

- use technical information in various languages to plan and carry out work tasks
- perform and interpret wear indications in engines with the help of measuring tools
- perform pressure and leak tests on lubricant and cooling systems according to workshop literature
- explain the basic principles of combustion and energy applied to engine systems
- troubleshoot components in fuel and injection systems
- perform emissions tests, interpret the results and explain how exhaust gas cleaning systems work
- troubleshoot the ignition and engine control systems
- perform pressure tests on turbo, compressor and intercooler systems and explain how these work
- measure electric sizes and interpret the results from troubleshooting and diagnoses
- read circuit diagrams and troubleshoot electric and electronic components
- troubleshoot and interpret results from measurements and tests on lighting circuits, charging system and the starting motor
- troubleshoot components of the comfort and air conditioner systems, and explain how these work
- explain the basic principles of digital control systems
- troubleshoot gear systems and transmission mechanisms in gear drives
- troubleshoot couplings and tripping devices
- troubleshoot wheel suspensions and explain the wheel angle's affect on tyre wear patterns
- troubleshoot steering devices and explain how these work
- troubleshoot braking systems, evaluate the results and explain how these work
- perform diagnoses on systems for active and passive security

## Service and maintenance

*The aims of the training are to enable the apprentice to*

- plan and perform service and maintenance based on instructions from manufacturers and current rules and legislation
- use tools, equipment and measuring instruments correctly to fulfil work assignments
- document quality control on finished work tasks
- perform control checks, repairs and adjustments to lighting systems based on current rules
- select and use motor vehicle oils, lubricants and liquids
- select and use the product data sheets and EHS data sheets to fulfil work tasks
- perform emissions tests and interpret emissions values in line with current regulations
- select tyres and rims according to requirement and technical data for the vehicle
- perform maintenance on components in the comfort and air-conditioning systems

### Repairs

*The aims of the training are to enable the apprentice to*

- plan and perform repairs based on work orders, and evaluate time used
- perform hot work and fix high-pressure systems based on safety regulations and procedures
- mount parts and equipment according to laws, regulations and instructions from manufacturers and suppliers
- replace and adjust register transfers on engines
- replace and repair engine components
- replace and repair electrical and electronic components
- replace components in the car's lubrication and cooling system
- replace and repair components in gear systems, u-joints, drive shafts and differential gears
- replace and repair components in the wheel suspension and steering devices
- perform tests on four-wheel drive vehicles and make necessary adjustments to wheel angles
- replace and repair components in braking systems
- change tyres and balance wheels
- repair systems for active and passive security
- repair comfort and air conditioning systems
- replace and repair components in the vehicle body

### Communication and quality

*The aims of the training are to enable the apprentice to*

- communicate with customers and deal with them according to customer service guidelines
- cooperate with colleagues and other collaborators to find professional solutions
- describe the structure and organisation of the company you work for
- give an account of requirements set by authorities for the company and for working on vehicles
- perform work based on current rules and regulations for environment, health and safety
- perform source separation and handle special waste based on current rules and regulations
- give an account of routines/systems in the trade for dealing with complaints and quality assurance
- discuss and elaborate on profitability and efficiency when selecting repair methods
- use digital workshop systems

# Assessment

**Vg3 Motor vehicle mechanic, light-duty vehicles**

Provisions for final assessment:

| Main subject areas | Provision |
|---|---|
| Troubleshooting and | All apprentices shall sit for a Trade Examination, which is normally carried out over a period of four working days. |

| | |
|---|---|
| diagnosis<br><br>Service and maintenance<br><br>Repairs<br><br>Communication and quality | |

The provisions for assessment are stipulated in the regulations of the Norwegian Education Act.