

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 February 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 01.08.2018

Valid to 31.07.2022



Utdannings-  
direktoratet

## Purpose

The subject Construction and production machinery mechanic shall contribute to developing competence in repairs and maintenance of construction vehicles, equipment and tools. Furthermore, the subject shall contribute to safe operation of machines and tools by emphasising environment, health and safety. The subject shall contribute to complying with requirements for reduction of emissions of environmentally hazardous liquids and gases.

Learning in the subject shall contribute to the apprentice developing competence in troubleshooting, diagnosing, repairing and maintenance of all machine equipment used in construction and civil engineering. Furthermore, learning in the subject shall contribute to the apprentice developing the ability to think independently and make reasonable assessments. Learning in the subject shall promote professional development and flexibility, and contribute to the individual developing an understanding of the trade as a whole. Learning in the subject shall also promote interpersonal and communication skills.

Learning in the subject shall arrange for training in planning, execution, documentation and high-quality workmanship. Furthermore, learning in the subject shall prepare the apprentice to work on construction vehicles and different types of equipment and tools for construction and civil engineering. Respect for machines, humans and the environment shall be central themes in the subject.

Training completed and passed in the subject will lead to a Trade Certificate. The professional title is Construction and Production Machinery Mechanic.

## Structure

Construction and production machinery mechanic consists of three programme subjects. Programme subjects complement each other, and should be viewed in relation to one another.

### Overview of the programme subjects:

Year level	Programme subjects		
Vg3 / In-service training at a training establishment	Troubleshooting and diagnosis	Repairs and maintenance	Documentation and quality

## Description of the programme subjects

The programme subject covers troubleshooting and diagnosis techniques. Use of technical literature and digital tools is included in the work. The programme subject also covers assessment of cost and profitability of a repair, planning work and selecting tools.

The programme subject covers repair work using repair manuals and other necessary technical literature, tools and measuring instruments. Guiding users in construction vehicle maintenance is included in the programme subject. Environment, health and safety are central themes of this subject.

The programme subject covers the application of laws and regulations, writing work and progress reports and documenting finished work. Registering and reporting deviations is also included. Furthermore, this subject deals with communicating with customers and colleagues.

## Teaching hours

Teaching hours are stated as 60-minute units.

Vg3

Troubleshooting and diagnosis: 205 annual class hours

Repairs and maintenance: 580 annual class hours

Documentation and quality: 140 annual class hours

## 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 Construction and production machinery mechanic, basic skills are understood as follows:

*Being able to express oneself orally and in writing* in Construction and production machinery mechanic involves communicating with customers, colleagues and suppliers about professional solutions. It also involves risk assessment and preparing reports. Furthermore, it involves the use of technical English.

*Being able to read* in Construction and production machinery mechanic involves understanding and using job descriptions, procedures, repair manuals and standards in Norwegian and English. Furthermore, the subject deals with the use and understanding laws and regulations.

*Numeracy* in Construction and production machinery mechanic involves calculating pressures, liquid quantities, temperatures, electrical sizes and mixing proportions for liquids. Furthermore, the subject involves calculating the economic consequences of resource use, and selection of methods. It also involves taking measurements and completing registrations according to drawings, schedules and standards. Furthermore, the subject involves converting units of measure.

*Digital literacy* in Construction and production machinery mechanic involves using computer systems to plan and document, troubleshoot, repair, test and do control checks on machines. It also involves using digital instruments for diagnoses, measurements and calculations. Furthermore, the subject involves gathering network-based information and communicating with customers.

## Competence aims

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

- troubleshoot and diagnose systems and components where functional errors are registered
- plan work, and select tools based on the diagnosis
- evaluate and describe the need for repairing components with registered functional errors
- evaluate repair jobs based on cost and profitability, and discuss optional solutions
- use technical literature and digital tools in troubleshooting work

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

- use repair manuals and technical literature in repair work
- use measuring instruments and evaluate the results from the measurements
- perform repairs and maintenance on two and four stroke internal combustion engines
- perform repairs and maintenance on transmissions and drive gears
- perform repairs and maintenance on framing, digging and loading equipment
- perform repairs and maintenance on brakes, steering, belts and underbodies
- evaluate and perform maintenance on tires and wheel equipment
- perform repairs and maintenance on hydraulic and pneumatic systems
- perform repairs and maintenance on electrical and electronic systems
- perform repairs and maintenance on monitoring and warning systems
- perform repairs and maintenance on digital steering for engines and hydraulics
- perform repairs and maintenance on equipment for building, construction and road maintenance
- perform repairs and maintenance on comfort and climate systems
- perform repairs and maintenance on digital machine-steering systems
- perform periodic maintenance on construction vehicles and ancillary equipment and tools, in line with manufacturer specifications
- give guidance to users in necessary maintenance of construction vehicles, equipment and tools
- select lubricants and liquids in accordance with manufacturer specifications
- perform work in line with current rules and regulations for environment, health and safety

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

- gather and use data from suppliers in repair work
- communicate with customers and colleagues about professional solutions and the extent of work
- write work reports, and follow the company's internal control system for reporting
- give an account of rules and regulations for control checks and certification
- register and report on deviations
- handle and sort waste in line with current rules and legislation

## Assessment

### Vg3 Construction and production machinery mechanic

Provisions for final assessment:

#### *Overall achievement grades*

Programme subjects	Provision
Troubleshooting and diagnosis	The pupil shall have an overall achievement grade in each programme subject.
Repairs and maintenance	
Documentation and quality	

#### *Examination for external candidates*

Programme subjects	Provision
Troubleshooting and diagnosis	External candidates shall sit for a written examination in each programme subject. In addition to this, the external candidate shall sit for an interdisciplinary practical examination where the common programme subjects are included. The examination is prepared and graded locally.
Repairs and maintenance	
Documentation and quality	

#### *Trade Examination*

Main subject areas	Provision
Troubleshooting and diagnosis	All pupils shall sit for an interdisciplinary written examination in each common programme subject. The examination must be passed before a Trade Examination can be taken. The examination is prepared centrally and censured locally.
Repairs and maintenance	
Documentation and quality	All pupils shall sit for a Trade Examination, which is normally carried out over a period of at least four working days.

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