

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

## Purpose

Welding shall lay the foundation for practicing the occupation of joining metallic materials using different welding methods. This work covers large and small constructions, pipes, parts and details, and is practiced in mechanical workshops and within the shipping, oil and gas industries. The subject sets high standards for the selection of materials, processes and methods, and requires competence that complies with international standards and requirements for effectiveness and environmental protection.

Learning in the subject shall develop the apprentice's ability to work independently using welding methods and techniques in line with current requirements for quality. Learning in the subject shall help the apprentice develop his or her power of concentration, an eye for detail and the ability to communicate and cooperate with other professionals and trades.

Learning in the subject shall provide training in planning, execution, assessment and documentation of welding according to current applicable rules and legislation. Furthermore, learning in the subject shall help prepare the apprentice for work characterised by shift work and requirements to flexibility and mobility. Working in line with the rules for Environment, Health and Safety shall be a central theme of learning.

Training completed and passed in the subject will lead to a Trade Certificate.

The professional title is Welder.

## Structure

Welding consists of three 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	Planning and preparation	Welding techniques	Self-inspection and documentation

## Main subject areas

The main subject area covers planning and preparation prior to welding. It covers technical drawings, WPS welding procedures, welding sequences and selecting materials, tools and equipment. Requirements for welding certification and EHS systems and regulatory requirements are included in the main subject area.

The main subject area covers the selection of welding methods and welding work based on working drawings, procedures and current standards. This also includes measuring preheating and interpass temperatures and calculating heat supply. Troubleshooting and maintenance are included in the main subject area.

The main subject area covers control functions and inspections of finished welds, mechanical completion documentation and traceability. NDT methods and reports are included in the main subject area. Completing products and documentation of finished work are also included.

## 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 Welding, basic skills are understood as follows:

*Being able to express oneself orally in Welding* involves discussing and elaborating on professional solutions with colleagues.

*Being able to express oneself in writing in Welding* involves describing deviations, preparing measurement reports, documentation and safety and repair reports.

*Being able to read in Welding* involves understanding procedures, instructions, reports, standards and drawings.

*Numeracy in Welding* involves calculating heat supply, use of materials and welding consumables.

*Digital literacy in Welding* involves using digital measuring instruments and the company's control systems.

## Competence aims

### Planning and preparation

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

- plan working process according to technical drawings and documents, procedures, job permit systems and current rules and regulations
- perform safe job analyses
- plan welding sequences
- give an account of the requirements for welding certifications
- give an account of NDT methods and their areas of use
- select materials, tools, equipment and consumables (solder, flux etc.) suited to the work tasks
- give an account of the company's organization and one's own tasks and functions
- give an account of factors that can influence profitability
- perform work in line with control systems for production and quality
- evaluate the economic consequences of methods and the selection of materials
- discuss and elaborate on professional solutions and cooperate with other professionals
- perform source separation and the handling of waste in line with current rules and regulations

### Welding techniques

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

- perform work in line with working instructions, WPS welding procedures and current standards
- use automated welding methods based on current standards
- give an account of the possibilities that existing welding methods have for mechanisation
- use welding consumables according to instructions provided by suppliers
- troubleshoot and do maintenance on welding equipment
- do welding based on drawings, welding procedures, specifications and instructions
- perform carbon arc chiselling
- calculate and interpret the parameters for heat supply
- give an account of the significance shielding gases have on the result of welding work

- give an account of the advantages and disadvantages of the selection of welding methods
- measure preheating and interpass temperatures, and calculate heat supply

## Self-inspection and documentation

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

- perform visual control checks on one's welding work
- evaluate the quality of one's own work based on drawings, specifications and current standards
- control traceability and sign for executed welding tasks
- report deviations and recommend corrective measures
- document work executed in line with current control systems
- complete and clean the product for further treatment
- give an account of the different methods available for surface treatment of finished products

## Assessment

### Vg3 Welding

Provisions for final assessment:

Main subject areas	Provision
Planning and preparation  Welding techniques  Self-inspection and documentation	All apprentices shall take a Trade Examination, which is normally carried out over a period of three working days.

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