

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

Laboratory work educates laboratory technicians in areas of research, production, diagnostics, forensic medicine, food safety, and health-related and environmental testing. The subject shall promote the role as professional laboratory technician in industrial working environments, medical laboratories and research laboratories. Furthermore, the subject shall contribute to upholding high standards for quality, safety, and traceability.

Learning in the subject shall help the apprentice develop knowledge about sampling, understanding production processes and competence in chemistry and laboratory techniques. Furthermore, learning in the subject shall contribute to developing competence in planning, control work, quality assurance and documentation. Learning in the subject shall also contribute to developing the apprentice's ability to be precise and careful in his or her work. Furthermore, learning in the subject shall promote professional insight and communication skills.

Learning in the subject shall arrange for training in analysis methods and the use of equipment. National and international standards and guidelines shall be central themes in learning. Furthermore, learning in the subject shall arrange for work to better understand methodology, product development and optimise production. Learning in the subject shall promote respect for human beings and the environment. Professional ethics shall also be a part of learning. Learning in the subject shall prepare the apprentice for an occupation with a high percent of job change and reorganisation.

Training completed and passed in the subject will lead to a Trade Certificate. The professional title is Laboratory Technician.

Structure

Laboratory work 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	Tests, analyses and methods	Instruments and equipment	Documentation and quality

Main subject areas

The main subject area covers sampling, preparation, analysis and assessment of test results. Furthermore, the subject covers an understanding of methodology, product development and control of production processes. Environment, health and safety are central themes of this subject.

The main subject area covers the use, maintenance and storage of instruments and equipment. It also covers regulations and routines.

Planning, controlling, assessing and reporting are included in the main subject area. The subject also covers laboratory routines and systems.

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 Laboratory work, basic skills are understood as follows:

Being able to express oneself orally and in writing in Laboratory work involves describing and documenting work tasks. It also involves formulating risk assessments and non-conformance reports. Furthermore, the subject deals with using a precise and professional language and communicating with colleagues and collaborators about professional solutions.

Being able to read in Laboratory work involves understanding and following work descriptions, manuals, procedures and standards.

Numeracy in Laboratory work involves calculating results, doing statistical work and adjusting device and equipment. It also involves doing calculations of physical properties. It also means evaluating costs related to time used and materials and equipment chosen.

Digital literacy in Laboratory work involves using computer equipment for planning and executing work tasks, documentation, communication and searching for information. Furthermore, it involves using digital tools for troubleshooting and adjusting devices and equipment.

Competence aims

Tests, analyses and methods

The aims of the training are to enable the apprentice to

- do work based on current environment, health and safety regulations and quality assurance
- plan and perform work in line with existing procedures
- select and use analysis methods
- plan and perform sampling in line with flow charts and technical documentation
- prepare tests for analysis
- use laboratory techniques suited to the task
- measure and calculate physical properties
- use analysis instruments and carry out instrumental analyses
- evaluate and verify results from analyses based on given guidelines
- recommend modifications and optimisation for product and method development

Instruments and equipment

The aims of the training are to enable the apprentice to

- calibrate instruments and equipment
- follow routines for order and cleanliness at the workplace
- select instruments and equipment suitable for the work tasks
- use, maintain and store company instruments and equipment based on regulations and routines
- clean laboratory instruments and equipment following current regulations and routines
- store and handle waste and old equipment based on current regulations and routines
- use the laboratory's digital equipment

Documentation and quality

The aims of the training are to enable the apprentice to

- evaluate and control work based on a quality assurance system, ethical norms and regulations
- evaluate costs when choosing materials and working processes
- document finished work in line with procedures
- register and report deviations
- ensure traceability of analyses, equipment and test results
- perform work based on procedures, and evaluate time used against the requirements for safety, quality and profitability
- evaluate the need for assistance to solve problems using other professions
- recommend, discuss and elaborate on opportunities to improve efficiency of methods, routines and procedures
- handle information from clients and employers in line with the ethical norms for the profession
- give an account of the company's organisation, tasks and responsibilities

Assessment

Vg3 Laboratory work

Provisions for final assessment:

Main subject areas	Provision
Tests, analyses and methods	All pupils shall sit for a Trade Examination, which is normally carried out over a period of two working days.
Instruments and equipment	
Documentation and quality	

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