

## **Building and construction**

The subject of building and construction covers construction from the planning phase to completion and operation. It also covers different professions and working conditions in the building and construction industry.

### **Aim of the subject**

Teaching in the subject of building and construction should aim at helping students develop knowledge of professions in construction, building of houses, painting and sheet metal, as well as other specialist professions. Students should also be given opportunities to develop basic skills in construction, building of houses, painting and sheet metal work, as well as an understanding of work in the building and construction industry.

Teaching should lead to students developing their knowledge of laws and other regulations in the professional area, and knowledge of where to search for information about current regulations. It should also help students develop their ability to work with respect to health and safety. Teaching should give students the opportunity to develop their knowledge of the industry's responsibility for sustainable development.

Through teaching students should be given the opportunity to develop an understanding of taking responsibility in building and construction work, and the ability to adopt a critical approach to attitudes and values in the workplace. Furthermore, students should be given the opportunity to develop the professional language used in the area, and the ability to communicate with both work colleagues and customers. Teaching should give students the opportunity to develop the ability to document and quality assure their work, and reflect on how work processes have affected results.

Teaching should be carried out in such a way that theoretical and practical knowledge are woven together and form a whole for the students. Tasks should be carried out using methods, tools and machines that are modern and ergonomically adapted. Teaching should give students the opportunity to develop creativity, the ability to solve problems and take initiatives, and should be organized in such a way that students have the opportunity to carry out their tasks, both individually and in cooperation with others.

### **Teaching in the subject of building and construction should give students the opportunities to develop the following:**

- 1) The ability to search for information and plan, organise and carry out common tasks.
- 2) Knowledge of different methods, materials, tools and machines.
- 3) Knowledge of laws and other regulations in the professional area.
- 4) The ability to carry out risk assessments of tasks.
- 5) Skills in following task descriptions and using drawings.

- 6) The ability to handle and maintain materials, tools and machines.
- 7) The ability to work safely with regard to health, the working environment and ergonomomy.
- 8) The ability to assess work processes and results and document their work.
- 9) Knowledge of common professions and work processes in the building and construction industry, and what sustainable development means in the industry.
- 10) The ability to cooperate and communicate with others and use professional language appropriately.

### **Courses in the subject**

- Building and construction 1, 200 credits.
- Building and construction 2, 200 credits, which builds on the course building and construction 1.

# Building and construction 1

The course building and construction 1 covers points 1–10 under the heading Aim of the subject. The course covers basic knowledge in the subject.

## Core content

*Teaching in the course should cover the following core content:*

- Searching for task-related information using the internet and other methods.
- Practical tasks in construction, house building, painting and sheet metal.
- Simple plans and calculations to solve tasks.
- Tools and machines for different purposes. Handling and maintenance.
- Different types of materials and their properties.
- Handling of materials e.g. consumption and recycling.
- The working environment, health, ergonomics, as well as safety and risk assessments of tasks.
- Basic reading of drawings.
- Methods of documenting and assessing their work.
- Different professions in the building and construction industry, and study visits to various workplaces.
- The construction process from planning to completion and operation, as well as the functions and roles of different players.
- Special terms.

## Knowledge requirements

### Grade E

Students plan, organise and carry out with **some** skills simple tasks.

In their planning, students **in consultation** with the supervisor choose materials, tools, machines and a method appropriate for the task. In addition, students **in basic terms** give reasons for their choices with regard to health, the environment, financial factors, as well as laws and other regulations. Students make a **simple** risk assessment of the task, and where necessary adapt their planning **in consultation** with the supervisor.

During the working process, students identify problems that occur and solve them **in consultation** with the supervisor. In their work, students **in consultation** with the supervisor

follow task descriptions and drawings, and correctly handle and maintain materials, tools and machines **with some certainty** in accordance with specific instructions. Students work safely with regard to health, the working environment and ergonomics.

During the working process and when the task has been completed, students create **simple** documentation of their work. In addition, students on the basis of specified quality requirements make a **simple** assessment of the work process and results.

Students give an account **in basic terms** of the importance of their own work process and results in relation to sustainable development. In addition, students give an account **in basic terms** of work processes and professions in the building and construction industry.

In their work, students cooperate and communicate with others, and use simple professional language **with some certainty**.

In consultation with the supervisor, students assess **with some certainty** their own ability and the requirements of the situation.

## **Grade D**

Grade D means that the knowledge requirements for grade E and most of C are satisfied.

## **Grade C**

Students plan, organise and carry out with **good** skills simple tasks.

In their planning, students choose **after consultation** with the supervisor, materials, tools, machines and a method appropriate for the task. In addition, students give **in detail** reasons for their choices with regard to health, the environment, and financial factors in accordance with laws and other regulations. Students make a risk assessment of the task and **situation**, and where necessary, adapt their planning **after consultation** with the supervisor.

During the working process, students identify problems that occur and solve them **after consultation** with the supervisor. In their work, students **after consultation** with the supervisor follow task descriptions and drawings, and correctly handle and maintain materials, tools and machines **with some certainty** in accordance with specific instructions. Students work safely with regard to health, the working environment and ergonomics.

During the working process and when the task has been completed, students create **accurate** documentation of the work. In addition, students on the basis of specified quality requirements make a **balanced** assessment of the work process and its results.

Students give **in detail** an account of the significance of their own work process and results in relation to sustainable development. In addition, students give an account **in detail** of work processes and professions in the building and construction industry.

In their work, students cooperate and communicate with others, and use simple professional language **with some certainty**.

In consultation with the supervisor, students assess **with some certainty** their own ability and the requirements of the situation.

## Grade B

Grade B means that the knowledge requirements for grade C and most of A are satisfied.

## Grade A

Students plan, organise and carry out with **very good** skills simple work tasks.

In their planning, students choose **after consultation** with the supervisor, materials, tools, machines and a method appropriate for the task. In addition, students give **in detail and in a balanced way** reasons for their choice with regard to health, the environment, and financial factors, in accordance with laws and other regulations. Students carry out a **well grounded** risk assessment of the task **and situation** and where necessary, adapt their planning **after consultation** with the supervisor.

During the working process, students identify problems that occur and solve them **after consultation** with the supervisor. In their work, students **after consultation** with the supervisor follow task descriptions and drawings, and correctly handle and maintain materials, tools and machines **with certainty** in accordance with specific instructions. Students work safely with regard to health, the working environment and ergonomics.

During the working process and when the task has been completed, students create **accurate and detailed** documentation of the work. In addition, students, on the basis of specified quality requirements, make a **balanced** assessment of the work process and results, **and make suggestions on how these can be improved**.

Students give an account **in detail and in a balanced way** of the significance of their own work process and results in relation to sustainable development. In addition, students give an account **in detail and in a balanced way** of work processes and professions in the building and construction industry.

In their work, students cooperate and communicate with others and use simple professional language **with certainty**.

In consultation with the supervisor, students assess **with certainty** their own ability and the requirements of the situation.

## Building and construction 2

The course building and construction 2 covers points 1–10 under the heading Aim of the subject. The course covers advanced knowledge in the subject.

### Core content

*Teaching in the course should cover the following core content:*

- Searching for task-related information using the internet and other methods.
- Practical tasks in construction, house building, painting and sheet metal.
- Planning and calculations to solve tasks.
- Tools and machines for different purposes. Handling and maintenance.
- Different types of materials and their properties.
- Knowledge of laws and other regulations and performance specifications.
- The requirements of the Swedish Work Environment Authority and trade organisations regarding safety and qualifications necessary for working in the industry.
- Fundamental knowledge of fire risks, fire protection, inflammable goods, and electrical safety.
- Different types of risks associated with tasks and methods for carrying out risk assessments.
- First aid and cardiopulmonary resuscitation.
- Health and ergonomomy.
- Methods of documenting and assessing their work.
- Different professions in the building and construction industry, and study visits to various workplaces.
- Planning of construction projects and collaboration between different professional groups and with clients and customers.
- Role of the building and construction industry in society and with regard to sustainable development.
- Resource use, linked to sustainable development and company profitability. Such as material handling, storage, minimization of waste and sorting of construction waste.
- Special terms.

### Knowledge requirements

## Grade E

Students plan, organise and carry out with **some** skills simple tasks.

In their planning, students **in consultation** with the supervisor choose materials, tools, machines and a method appropriate for the task. In addition, students **in basic terms** give reasons for their choices with regard to health, the environment, financial factors, as well as laws and other regulations. Students make a **simple** risk assessment of the task, and where necessary adapt their planning **in consultation** with the supervisor. In addition, students carry out **with some certainty** necessary measures for a simulated accident.

During the working process, students identify problems that occur and solve them **in consultation** with the supervisor. In their work, students **in consultation** with the supervisor follow task descriptions and drawings, and correctly handle and maintain materials, tools and machines **with some certainty** in accordance with specific instructions. Students work safely with regard to health, the working environment and ergonomics.

During the working process and when the task has been completed, students create **simple** documentation of their work. In addition, students on the basis of specified quality requirements make a **simple** assessment of the work process and results.

Students give an account **in basic terms** of the importance of their own work process and results in relation to sustainable development. In addition, students give an account **in basic terms** of planning and work processes and of professions in the building and construction industry.

In their work, students cooperate and communicate with others, and use simple professional language **with some certainty**.

In consultation with the supervisor, students assess **with some certainty** their own ability and the requirements of the situation.

## Grade D

Grade D means that the knowledge requirements for grade E and most of C are satisfied.

## Grade C

Students plan, organise and carry out with **good** skills simple tasks.

In their planning, students choose **after consultation** with the supervisor, materials, tools, machines and a method appropriate for the task. In addition, students give **in detail** reasons for their choices with regard to health, the environment, and financial factors in accordance with laws and other regulations. Students make a risk assessment of the task and **situation**, and where necessary, adapt their planning **after consultation** with the supervisor. In addition, students carry out **with some certainty** necessary measures for a simulated accident.

During the working process, students identify problems that occur and solve them **after consultation** with the supervisor. In their work, students **after consultation** with the supervisor follow task descriptions and drawings, and correctly handle and maintain materials, tools and machines **with some certainty** in accordance with specific instructions. Students work safely with regard to health, the working environment and ergonomics.

During the working process and when the task has been completed, students create **accurate** documentation of the work. In addition, students on the basis of specified quality requirements make a **balanced** assessment of the work process and its results.

Students give an account **in detail** of the significance of their own work process and results in relation to sustainable development. In addition, students give an account **in detail** of planning and work processes and of professions in the building and construction industry.

In their work, students cooperate and communicate with others, and use simple professional language **with some certainty**.

In consultation with the supervisor, students assess **with some certainty** their own ability and the requirements of the situation.

## **Grade B**

Grade B means that the knowledge requirements for grade C and most of A are satisfied.

## **Grade A**

Students plan, organise and carry out with **very good** skills simple work tasks.

In their planning, students choose **after consultation** with the supervisor, materials, tools, machines and a method appropriate for the task. In addition, students give **in detail and in a balanced way** reasons for their choice with regard to health, the environment, and financial factors, in accordance with laws and other regulations. Students carry out a **well grounded** risk assessment of the task **and situation** and where necessary, adapt their planning **after consultation** with the supervisor. In addition, students carry out **with some certainty** necessary measures for a simulated accident.

During the working process, students identify problems that occur and solve them **after consultation** with the supervisor. In their work, students **after consultation** with the supervisor follow task descriptions and drawings, and correctly handle and maintain materials, tools and machines **with certainty** in accordance with specific instructions. Students work safely with regard to health, the working environment and ergonomics.

During the working process and when the task has been completed, students create **accurate and detailed** documentation of the work. In addition, students, on the basis of specified quality requirements, make a **balanced** assessment of the work process and results, **and make suggestions on how these can be improved**.

Students give an account **in detail and in a balanced way** of the significance of their own work process and results in relation to sustainable development. In addition, students give **in detail and in a balanced way** an account of planning and work processes and of professions in the building and construction industry.

In their work, students cooperate and communicate with others and use simple professional language **with certainty**.

In consultation with the supervisor, students assess **with certainty** their own ability and the requirements of the situation.