

## **Vehicle technology**

The subject of vehicle technology covers the structure and functions of vehicles, and the underlying principles in mechanics, electricity, hydraulics and pneumatics. It also covers materials science, working methods, tools and other aids.

### **Aim of the subject**

Teaching in the subject of vehicle technology should aim at helping students develop technical skills and interest in technology. Students should be given the opportunity to develop the ability to service and repair vehicles and the ability to handle tools and equipment. Teaching should help students develop knowledge of the main components in vehicles. Teaching should also give students the opportunity to develop knowledge of disassembly and assembly processes and of handling some of the information systems used to solve work tasks.

Teaching should emphasise a problem solving approach and be based on situations in a workshop environment.

### **Teaching in the subject of vehicle technology should give students the opportunities to develop the following:**

- 1) Knowledge of the main components of vehicles, structure and areas of use, and also about their functions and how they work together in vehicles.
- 2) The ability to carry out simpler repairs for different types of vehicles.
- 3) The ability to choose working methods appropriate to the task.
- 4) The ability to use tools and equipment.
- 5) The ability to take responsibility at work for the value of machines and other assets, and also for their own and others' safety.
- 6) Knowledge of laws and other regulations, and also the ability to work in accordance with regulatory requirements for safety, quality and the environment.
- 7) The ability to cooperate and communicate with others, and use concepts and expressions relevant to the subject area.

### **Courses in the subject**

- Vehicle technology – introduction, 200 credits.

## Vehicle technology – introduction

The course, vehicle technology – introduction, covers points 1–7 under the heading Aim of the subject.

### Core content

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

- Main components of vehicles, e.g. engines, powertrain, chassis components and brakes.
- Materials and different welding techniques used in vehicles.
- Standard regular servicing in accordance with guidelines from vehicle manufacturers.
- Simpler dismantling and assembling of different parts of a vehicle's main components.
- Information systems and manuals for the work.
- Handling the tools and machines used in the work.
- Maintenance of tools, equipment and workshop environments.
- Lifting and palleting of motor vehicles.
- Safety at the workplace and prevention of injuries and damage to persons and property, and also laws and other regulations that apply to the work.
- Technical terms and concepts.

### Knowledge requirements

#### Grade E

Students describe **in basic terms** different main components of vehicles and their functions, both individually and how they work together in a vehicle.

Students carry out **in consultation** with the supervisor service and repairs on vehicles. In their work, students choose **with some certainty** appropriate working methods. Students carry out also in familiar situations **simple** dismantling and assembly tasks. In their work, students use **with some certainty** the tools and other aids appropriate for solving specific tasks. The results of the work are **satisfactory**.

Students take responsibility for material assets and for their own safety and that of others, and keep the workplace well-organised. In their work, students give an account **in basic terms** of laws and other regulations governing the work. In addition, students work in accordance with requirements on safety, quality and the environment.

Students cooperate to achieve planned results, and use concepts and expressions in their communication relevant to the subject area.

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 describe **in detail** different main components of vehicles and their functions, both individually and how they work together in a vehicle.

Students carry out **after consultation** with the supervisor service and repairs on vehicles. In their work, students choose **with some certainty** appropriate working methods. Students carry out also in familiar situations **complex** dismantling and assembly tasks. In their work, students use **with some certainty** the tools and other aids appropriate for solving specific tasks. The results of the work are **satisfactory**.

Students take responsibility for material assets and for their own safety and that of others, and keep the workplace well-organised. In their work, students give an account **in detail** of laws and other regulations governing their work. In addition, students work in accordance with requirements on safety, quality and the environment.

Students cooperate **and contribute to maintaining their co-operation** in order to achieve planned results, and also use concepts and expressions in their communications relevant to the subject area.

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 describe **in detail and in a balanced way** different main components of vehicles and their functions, both individually and how they work together in a vehicle.

Students carry out **after consultation** with the supervisor service and repairs on vehicles. In their work, students choose **with certainty** appropriate working methods. Students carry out also in familiar **and new** situations **complex** dismantling and assembly tasks. In their work, students use **with certainty** the tools and other aids appropriate for solving specific tasks. Results of the work are **good**.

Students take responsibility for material assets and for their own safety and that of others, and keep the workplace well-organised. In their work, students give an account **in detail** of laws and

other regulations governing their work. In addition, students work in accordance with requirements on safety, quality and the environment.

Students cooperate **and contribute to maintaining and developing co-operation** in order to achieve planned results, and also use concepts and expressions in their communication relevant to the subject area.

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