



**LUNDS UNIVERSITET**  
Lunds Tekniska Högskola

*Course syllabus*

# **Trafikstyrning, signal- och telekommunikation inom järnvägstrafik**

## **Traffic Control, Signal and Telecommunication in Railway Traffic**

**VTVF36, 7,5 credits, G2 (First Cycle)**

**Valid for:** 2023/24

**Faculty:** Faculty of Engineering, LTH

**Decided by:** PLED V

**Date of Decision:** 2023-03-21

### **General Information**

**Compulsory for:** IBYI2

**Language of instruction:** The course will be given in Swedish

### **Aim**

The aim of the course is to give basic knowledge about signals and tele. technique both on system and component level. The aim is also to give insight to the signal and telecommulative problems that can occur in the phases of designing, building and maintenance of the system.

### **Learning outcomes**

*Knowledge and understanding*

For a passing grade the student must

- To give an account of the TSD basic rules, norms and trafikala conditions providing the design of signal technical facilities and understand how the design signal technical facilities are attached to railway vehicle characteristics
- Understand the chip solutions in the signal technological subsystems in connection with design work
- Understand how the design of the signal technical system affect capacity
- to set out the main telecommunications facility construction, design and function
- To give an account of the principles of the maintenance of the signal systems and understand the importance of a well planned maintenance program.

- Understand the feature of track circuit, switches, signal boxes, signal systems, ATC and ERTMS/ETSC

#### *Competences and skills*

For a passing grade the student must

- To comment on the signal technical terms and define these
- To comment on the signal technical facility construction, design and function
- To give an account of signs and plaques
- To give an account of the system transmission networks, radio system and IP-systems
- To be able to design a regular signal system

#### *Judgement and approach*

For a passing grade the student must

Analyze and assess maintenance data and suggest suitable maintenance measures and their effects

## **Contents**

The course contains comprehensive sections on the design, construction and function of different signalling installations, as well as how these installations interact in a traffic control system.

The connection between the railway vehicle's features and design of the signalling installations, as well as how the design influences the capacity, are also central parts of the course.

The course also contains an overview of different facilities for telecommunication regarding construction, layout and function.

The different phases, design, building and maintenance are illustrated, where operation and maintenance of signal- and telecommunication facilities are emphasized. Planning tools for maintenance will also be dealt with.

## **Examination details**

**Grading scale:** TH - (U,3,4,5) - (Fail, Three, Four, Five)

**Assessment:** Approved written exam

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

## **Admission**

**Assumed prior knowledge:** FAFA40 Physics

**The number of participants is limited to:** No

**The course overlaps following course/s:** ETS605, VTT622, VTVF35

## **Reading list**

- Elektroniskt kompendium Trafikstyrning och Telekommunikation.

## **Contact and other information**

**Examinator:** Andreas Persson, [andreas.persson@tft.lth.se](mailto:andreas.persson@tft.lth.se)

**Course coordinator:** Martin Johansson, [martin.a.johansson@trafikverket.se](mailto:martin.a.johansson@trafikverket.se)

**Course homepage:** <http://www.tft.lth.se/utbildning/grundutbildning/>

**Further information:** The course is given at Trafikverksskolan in Ängelholm.