



EF2262 Data Handling Systems for Satellites 6.0 credits

Satellitdatahanteringssystem

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

The official course syllabus is valid from the autumn semester 2022 in accordance with head of school decision: J-2021-2017. Decision date: 14/10/2021

Grading scale

A, B, C, D, E, FX, F

Education cycle

Second cycle

Main field of study

Electrical Engineering

Specific prerequisites

Knowledge and skills in programming, 5 higher education credits, equivalent completed course DD1310-DD1318/DD1331/DD1337.

The upper secondary course English B/English 6.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

After the course, the students should be able to:

- describe the functions of data management systems for satellites
- give an account of basic parts/components of data management systems
- give an account of most commonly occurring interface in satellite system and describe their electrophysical aspects
- give an account of methods for error detection and error handling in satellite data management systems
- give an account of common standards in space data
- put up and use a model data management systems
- work with technical documents.

Course contents

- Functions, components and structure of data management systems on board on satellites (on-board computers, memory, maximum load, subsystems etc)
- Interface (such as UART, I2C, SPI, CAN, SpaceWire, MIL-STD-1553, RS422/RS485, LVDS/MLVDS) and their electrophysical aspects (earthing, EMC)
- Ombordsprogramvara, error detection and error handling (FDIR), redundancy
- Standards in data structures (CCSDS)

Practical items in the course include labs where students should build up and operate datahanteringssystem with hardware and software according to current standard.

Examination

- LAB1 - Laboratory work, 1.5 credits, grading scale: P, F
- LAB2 - Laboratory work, 1.5 credits, grading scale: P, F
- TEN1 - Oral exam, 3.0 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

Ethical approach

- All members of a group are responsible for the group's work.

- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.