



SD2615 Air Traffic Management and Modern Avionics 6.0 credits

Flygledningssystem och modern avionik

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

Establishment

Course syllabus for SD2615 valid from Autumn 2007

Grading scale

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

Education cycle

Second cycle

Main field of study

Specific prerequisites

Base program T or a similar background. SD1600 Project Course in Aeronautics is recommended but not required.

Language of instruction

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

Intended learning outcomes

The **overall objectives** of the course are that you should be able to

- **Describe** avionics systems used in modern commercial aircraft today, and how the use of those systems influences aircraft operations.
- **Explain** the general structure of the air traffic management system, giving details about the main stakeholders (airlines, aviation authorities, navigation service providers, aircraft and pilots). **Motivate** the interaction of these stakeholders in the management of the airspace.
- Explain the ongoing developments in avionics and air traffic management directed to achieve higher levels of safety, capacity, economy and environmental considerations.

Course contents

The course will start with an introduction to modern air traffic management. After this, the lectures will focus on describing modern aviation technologies and systems used for communication and navigation. Special consideration will be given to the functions and use of the Flight Management System (FMS).

Once the modern avionics systems are explained and understood, the course will explain how the management of the air traffic is carried out today. The lectures will describe the structure of the air traffic system looking at the main stakeholders, their objectives and constraints.

Finally, the students will be lectured in current advanced concepts in air traffic management and avionics directed to achieve higher levels of safety, capacity and efficiency.

Together with the regular lectures, the course will include homework in practical issues. There will be also a field trip to the Air Traffic Control Center at Arlanda airport in Stockholm.

In the second half of the course, students will work in groups on a project in air traffic management or avionics in order to get a “hands-on” knowledge of the subject matter.

Course literature

Moir I., and Seabridge A., Civil Avionics Systems, AIAA Education Series and Professional Engineering Publishing Ltd, 2002.

Course compendium: Air Traffic Management.

Examination

- PRO1 - Project, 3.0 credits, grading scale: P, F
- TEN1 - Examination, 1.0 credits, grading scale: P, F
- LAB1 - Laboratory Work, 2.0 credits, grading scale: P, 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.

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

Other requirements for final grade

Laboratory work (LAB1; 2 university credits)

Written exam (TEN1; 1 university credits)

Project assignment (PRO1; 3 university credits)

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.