# EQ1010 Basics of Inertial Navigation 1.5 credits

## Grundläggande tröghetsnavigering

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

## Establishment

Course syllabus for EQ1010 valid from Spring 2016

## Grading scale

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

## Education cycle

First cycle

## Main field of study

Technology

## Specific prerequisites

## 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 will be able to:

* Explain the physical principles behind inertial sensors, and what physical quantities they measure.

* Define the most common coordinate systems used in inertial navigation and describe how quantities are transformed between them.

* Give an overview of the basic building blocks of an inertial navigation system.

* Explain by rule of thumb how the errors in inertial navigation systems grow.

* Describe the basic ideas behind a zero-velocity-aided inertial navigation system.

## Course contents

## Disposition

Course structure:

1. Lecture giving an overview about inertial sensors and inertial navigation.

2. Laboration illustrating signals from accelerometers and gyroscopes.

3. A deeper lecture about inertial navigation.

4. Laboration illustrating dead-reckoning, coordinate transformations, and vector algebra.

5. Demonstration of a more complex inertial navigation system.

## Course literature

TBD, see course homepage before course start

## Examination

• LAB1 - Laboration, 1.5 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.

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

## Other requirements for final grade

Passing grade on LAB1 1,5 AF

## 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.