



# DH2323 Computer Graphics and Interaction 6.0 credits

## Datorgrafik med interaktion

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

On 2019-10-15, the Head of School of EECS has decided to establish this official course syllabus to apply from the spring semester 2020 (registration number J-2019-0711).

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

Computer Science and Engineering, Information Technology, Information and Communication Technology

## Language of instruction

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

## Intended learning outcomes

On completion of the course, students should be able to

- explain and implement the ideas in some basic algorithms for computer graphics such as transformations, illumination models, hidden surface removal and rendering
- use an OpenGL software library and Unity3D and/or a modeling application such as Maya or Blender to build 3D objects and/or visualisations
- define and examine a problem or design in computer graphics and interaction, and visualise the results.

## Course contents

Graphical systems and models. Graphical primitives. Use of software libraries for graphics. Input and interaction. Geometric objects and transformations. Projections and views. Local and global lighting models. Colour: Operations on buffers and pixels. Rendering: clipping, hidden surface removal, scan conversion. Hierarchical and object-oriented models and animation. Curves and surfaces. Procedural methods. Realism. Human perception.

In the labs, a modern graphics package is used (OpenGL, which means that some programming is required) and a modern 3D graphics editor.

## Specific prerequisites

For non-program students, 120 credits are required, of which 45 credits should be in mathematics or computer science.

## Examination

- LABA - Laboratory work, 3.0 credits, grading scale: P, F
- PROA - Project, 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.

## Transitional regulations

Students who took the course 2019 or earlier and need to complete one of the earlier components LAB1 or TEN1 should contact the examiner to obtain a new examination assignment.

## 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.