



DH2323 Computer Graphics and Interaction 6.0 credits

Datorgrafik med interaktion

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

Establishment

The official course syllabus is valid from the spring semester 2025 in accordance with the decision from the director of first and second cycle education: J-2024-2208. Date of decision: 2024-10-15.

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

Specific prerequisites

Knowledge and skills in programming, 6 credits, equivalent to completed course DD1337/DD1310-DD1319/DD1321/DD1331/DD100N/ID1018.

Knowledge of algorithms and data structures, 6 credits, equivalent to completed course DD1320-DD1328/DD1338/DD2325/ID1020/ID1021.

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.

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.

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

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.