

SYLLABUS

3D Graphics for Computer Games 15 credits W0023E

3D grafik för datorspel

Course syllabus admitted: Spring 2023 Sp 3 - Present

DECISION DATE
2022-02-14

3D Graphics for Computer Games 15 credits W0023E

3D grafik för datorspel

First cycle, W0023E

Education level	Grade scale	Subject	Subject group (SCB)
First cycle	U G#	Medieteknik	Computer Technology

Entry requirements

In order to meet the general entry requirements for first cycle studies you must have successfully completed upper secondary education and documented skills in English language and courses corresponding with W0012E - Introduction to Computer Graphics 15 credits, W0013E Design processes and methods for Computer Graphics 15 credits, W0014E - 3D modelling and rendering 15 credits, W0015E - Compositing 15 credits, W0022E - Visual Effects 15 credits and W0025E - Computer Graphics Production for Animation 15 credits.

Selection

The selection is based on 1-165 credits.

Examiner

Arash Källmark

Course Aim

After course completion the student should be able to:

1. Explain the technical, scientific, artistic and practical basics in the field, especially how the limitations of the hardware affect applications in real-time graphics.
2. Create and implement optimized computer graphics for real-time rendering.
3. Manage the functions of a game engine to be able to perform simple game projects.
4. Independently plan, execute and deliver projects within the subject area based on given conditions and design principles.
5. Analyze and evaluate own and others' visual results and methods based on principles for visual design and the course topic.
6. Plan, organize and carry out a production process from idea to finished result.

Contents

The course discusses the following subject areas:

- Real-time rendering pipeline, hardware and software.
- Principles and processes for creating optimized graphic content and implementing it in a game engine.
- Simpler tools within a game engine, such as simple level creation, gameplay scripting, physics simulation and UI.
- Production processes for games.

Realization

Each course occasion's language and form is stated and appear on the course page on Luleå University of Technology's website.

The teaching takes place in the form of lectures and independent studies of course literature and distributed material, mainly in English. Furthermore, you are expected to show a high degree of independence in your own search for information.

Computer graphics is a craft that requires experience-based skills in combination with theoretical knowledge and problem-solving ability, both technical, artistic and production-related. A large part of the work in the course therefore consists of practical assignments in the subject which are solved mainly independently, with some support from the instructors. Through the university, you will have access to workstations with all the necessary materials, but you should also acquire your own work computer, digital tablet and system camera.

The ability to analyze, assess and improve one's work in a professional manner is a key characteristic of the subject. Formative feedback is often given on assignments, from supervisors, other students, as well as external participants, which gives you the opportunity to further develop your results and process.

The course also includes oral and written seminars and presentations for both internal and external audiences. Individual work is interspersed with group work in all forms of tasks.

Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided.

Formative assessments and feedback are given regularly in the course's activities. The course objectives are examined in various forms organized in test modules defined in the syllabus. The examination takes place both individually and in groups.

Each test module can in itself consist of several tasks, which appear in the study guide for the course. For all assignments, there are detailed descriptions in the course's learning platform that clarify how the assignment is to be performed and examined.

Literature. Valid from Spring 2023 Sp 3

Distributed material.

Course offered by

Department of Computer Science, Electrical and Space Engineering

Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0001	Seminars	U G#	3	Mandatory	S23	
0002	Project 1	U G#	2.5	Mandatory	S23	
0003	Project 2	U G#	7	Mandatory	S23	
0004	Practical exam	U G#	2.5	Mandatory	S23	

Study guidance

Study guidance for the course is to be found in our learning platform Canvas before the course starts. Students applying for single subject courses get more information in the Welcome letter. You will find the learning platform via My LTU.

Syllabus established

by Jonny Johansson, HUL SRT 2022-02-14