

SYLLABUS

Virtual interactive environments 7.5 credits D7049E

Virtuella interaktiva miljöer

Course syllabus admitted: Spring 2024 Sp 3 - Present

**DECISION DATE
2023-02-15**

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Virtuella interaktiva miljöer

Second cycle, D7049E

Education level	Grade scale	Subject	Subject group (SCB)
Second cycle	G U 3 4 5	Datateknik	Computer Technology

Main field of study

Computer Science and Engineering

Entry requirements

Bachelor-level knowledge in computer science and specific knowledge corresponding to Interactive systems design e.g. D7032E Software engineering and D0003E Real-time systems.

Good knowledge in English equivalent to English 6.

Selection

The selection is based on 30-285 credits

Course Aim

The course aims to design, create, and evaluate methods for virtual interactive environments.

- Knowledge and understanding
 - good understanding of the content pipeline for virtual interactive environments
 - understand and reflect over technical and specific requirements for the construction and design of software for virtual interactive environments
- Competence and skills
 - demonstrate ability to design software for large interactive systems
 - demonstrate ability to design, construct and implement component based systems for virtual interactive systems
 - demonstrate basic knowledge and understanding of software engineering both individually and in a group
- Judgment and approach
 - demonstrate ability to identify the critical system components from a design perspective for a given scenario
 - demonstrate ability to critically judge and evaluate the quality software components and libraries given relevant evaluation criteria

Contents

The course focus on theory and applications for construction of virtual interactive environments, specifically effective handling of large amounts of visual material of different types e.g. 3D worlds within a video game. Basic knowledge of simulation of physical objects like rigid body mechanics as well as algorithms for collision detection and response. Construction of component systems and effective synchronisation between components and multiple computers over the network.

The course includes a number of assignments, which are to be completed in groups, and that are evaluated in both written and oral form, as well as seminars where current topics are explored, presented, and discussed

Realization

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

Teaching consists of lectures and laboratory work. The lab assignments are reported in writing or orally, and may be associated with a deadline. There may be home assignments, seminar tasks, and small tests throughout the course.

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. Seminars, assignments, active participation, oral and written presentation of projects. The final grade is based on performance in all elements of the course.

Unauthorized aids during exams and assessments

If a student, by using unauthorized aids, tries to mislead during an exam or when a study performance is to be assessed, disciplinary measures may be taken. The term "unauthorized aids" refers to aids that the teacher has not previously specified as permissible aids and that may assist in solving the examination task. This means that all aids not specified as permissible are prohibited. The Swedish version has interpretative precedence in the event of a conflict.

Course offered by

Department of Computer Science, Electrical and Space Engineering

Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0001	Examination	G U 3 4 5	7.5	Mandatory	S20	

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.

Last revised

by Robert Brännström 2023-02-15

Syllabus established

by Jonny Johansson, HUL SRT 2019-02-15