



## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### **DIT455 Game Engine Architecture, 7.5 credits**

Spelmotorarkitektur, 7,5 högskolepoäng

*Second Cycle*

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#### **Confirmation**

This course syllabus was confirmed by Department of Computer Science and Engineering on 2017-12-19 and was last revised on 2018-02-09 to be valid from 2018-08-19, autumn semester of 2018.

*Field of education:* Science 100%

*Department:* Department of Computer Science and Engineering

#### **Position in the educational system**

The course is compulsory within the Game Design & Technology Master's Programme. It is also a single subject course at the University of Gothenburg.

The course can be part of the following programmes: 1) Computer Science, Master's Programme (N2COS), 2) Game Design & Technology Master's Programme (N2GDT) and 3) Computer Science, Bachelor's Programme (NICOS)

#### *Main field of studies*

Computer Science

Interaction Design

#### *Specialization*

A1F, Second cycle, has second-cycle course/s as entry requirements

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#### **Entry requirements**

To be eligible for this course, students must have successfully completed the course DIT223 Computer Graphics, 7.5 credits, or equivalent.

Applicants must prove knowledge of English: English 6/English B or the equivalent level of an internationally recognized test, for example TOEFL, IELTS.

## Learning outcomes

After completion of the course the student should be able to:

### *Knowledge and understanding*

- Describe the typical structure of game engines and interactive simulations, and the requirements of specific parts of such engines
- Describe what public libraries and programs can be combined with existing game engines to provide the required functionality of a game engine

### *Competence and skills*

- Extend existing game engines to augment functionality while maintaining stability and having predictable consequences on resource use
- Present extensions of a game engine through a demonstrator at a public presentation

### *Judgement and approach*

- Analyze existing game engines to determine functionality and extendibility
- Plan several parallel extensions of a game engine while minimizing dependencies

## Course content

The course aims to give an understanding of components in modern interactive simulation engines.

The modeling and implementation of the fundamental components of game engines and interactive simulations is the core of the Game Architecture Engine course. The course focuses mainly upon 3 dimensional systems although other types of game engines and simulation are mentioned. The visual components of these systems are central for the course but other important areas such as networking, artificial intelligence and physics simulations are covered by the course.

## Form of teaching

The course is based around a series of exercises and a project within the subject area which is complemented with lectures and workshops. Work in the project is supervised with the aim of giving practical training in the development of frameworks for game engines and interactive simulations.

*Language of instruction:* English

**Assessment**

The course is examined through an individual project, an oral presentation, and attendance during other students' presentations.

If a student, who has failed the same examined component twice, wishes to change examiner before the next examination, a written application shall be sent to the department responsible for the course and shall be granted unless there are special reasons to the contrary (Chapter 6, Section 22 of Higher Education Ordinance).

In cases where a course has been discontinued or has undergone major changes, the student shall normally be guaranteed at least three examination occasions (including the ordinary examination) during a period of at least one year from the last time the course was given.

**Grades**

The grading scale comprises: Pass with Distinction (VG), Pass (G) and Fail (U).

The course is graded by an individual report and an oral presentation. Presence at the public final presentation is also required to pass.

**Course evaluation**

The course is evaluated through meeting after the course between teachers and student representatives. Further, an anonymous questionnaire is used to ensure written information. The outcome of the evaluations serves to improve the course by indicating which parts could be added, improved, changed or removed.

**Additional information**

The course is a joint course together with Chalmers.

Course literature to be announced the latest 8 weeks prior to the start of the course.

The course replaces the course TIA103, 7.5 credits. The course cannot be included in a degree which contains TIA103. Neither can the course be included in a degree which is based on another degree in which the course TIA103 is included.