

**SYLLABUS**

# **Game engine architecture**

## **7.5 credits S0012D**

**Spelmotorarkitektur**

**Course syllabus admitted: Spring 2020 Sp 3 - Present**

DECISION DATE  
**2019-06-13**

# Game engine architecture 7.5 credits S0012D

## Spelmotorarkitektur

### First cycle, S0012D

Education level	Grade scale	Subject	Subject group (SCB)
First cycle	G U 3 4 5	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 15 hp Mathematic  
- M0038M Mathematics I - Calculus, M0043M Mathematics II - Calculus and linear algebra, Mathematics III - Differential equations and transforms or equivalent.

30 hp Programming with focus on graphics programming

- D0009E Introduction to Programming, D0037D Object oriented programming, D0041D Data structures and algorithms, D0036D Network oriented programming, S0006E Real-time computer graphics programming or equivalent.

## Selection

The selection is based on 1-165 credits.

## Examiner

Patrik Holmlund

## Course Aim

The course aims to provide knowledge of spelmotorers function and structure and how these can be modified to expand / modify its functionality.

The student should be able to:

- With broad knowledge in the field of computer game development to understand the system level, and apply knowledge of mathematics and science for specific topics in game engines.
- Model, simulate, predict and evaluate methods and algorithms for the components used in a computer game and their implementation in a game engine.
- Identify the need for further knowledge and to continuously upgrade their skills. This by analyzing an existing game engine and adding new functionality.
- demonstrate an understanding of spelmotorers architecture and development environments
- Display knowledge of the various subsystems as a game engine consists of and how to use its API
- Identify critical subsystems from a design perspective for different game types
- Able to understand and communicate the specific problems of computer graphics can be based on a current game engine
- Display knowledge to practically modify the functionality of a game engine

## Contents

Game engine architecture, components, their purpose, function, requirements and their relationships. Game engines and development environments for different platforms and gaming applications, APIs, analysis of performance and functionality. Production Pipeline and its impact on design, graphics, and development methodology.

## Realization

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

Lectures and laboratory. Individual and group work with regular presentations of results, progress and implementation.

## 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.

Compulsory assignments.

## Transition terms

2402

## Literature. Valid from Autumn 2012 Sp 1

None

## Course offered by

Department of Computer Science, Electrical and Space Engineering

## Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0003	Assignment report 1	G U 3 4 5	2.5	Mandatory	S12	
0004	Assignment report 2	G U 3 4 5	2.5	Mandatory	S12	
0005	Assignment report 3	G U 3 4 5	2.5	Mandatory	S12	

## 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 Jonny Johansson, HUL SRT 2019-06-13

## Syllabus established

Kursplanen är fastställd av LTU Skellefteå 2007-12-08 att gälla från H08.