Physical Interaction and Game Programming

Programme course

6 credits

Fysisk interaktion och spelprogrammering

TDDD57

Valid from: 2017 Spring semester

Determined by
Board of Studies for Computer Science
and Media Technology

Date determined
2017-01-25

Main field of study

Information Technology, Computer Science and Engineering, Computer Science, Media Technology and Engineering

Course level

Second cycle

Advancement level

A1N

Course offered for

- Computer Science and Engineering, M Sc in Engineering
- Industrial Engineering and Management - International, M Sc in Engineering
- Industrial Engineering and Management, M Sc in Engineering
- Information Technology, M Sc in Engineering
- Computer Science and Software Engineering, M Sc in Engineering

Entry requirements

Note: Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

Prerequisites

Excellent programming skills and ability to independently carry out a programming project.

Intended learning outcomes

After the course the student should be able to:

- Design computer games with particular emphasis on the human body and physical artifacts as the game controller.
- Describe, evaluate and reflect on different physical interaction techniques, with particular focus on the human body and physical artifacts as the game controller techniques
- Using a game development environment such as XNA Game Studio, Unitys3D, UDK , or Game Maker based on programming languages such as C# and Java.

Course content

Computer games as products are based on the possibilities provided by the game controller. In recent years we have seen an increase in the production of alternative game controllers based on the human body and use of physical artifacts. These technologies not only create new opportunities for interaction, they also create new opportunities for game design.

The focus is on physical interaction and the human body as as the game controller and how it affects the programming and design of computer games and interactive media. These techniques concern the monitoring and of body, head, eye movement, gestures, and even recognition of physical artifacts that are handled humans.

Students will conduct a series of labs that illustrate the programming of such areas as physical interaction and addresses a number of interaction body movement or head movement in relation to games. Students will then have to develop a game project in a selected technology whose game design focuses on physical interaction.

The development will be in game development environments such as Microsoft XNA Game Study and Unity 3D, and build games with physical interaction through the systems like XBOX Kinect.

Teaching and working methods

The course is conducted as a series of labs and a project assignment. The course website contains reference to the literature in the form of articles and materials. Assistance is provided through programming seminars and via the electronic forum.

The course will also include a series of lectures and seminars where the various projects are presented and discussed with other students in the course. Student projects will also be presented in electronic form such as forums, development blog or youtube video.

Oral examination of the project is carried out individually

Examination

PRA1	Project work	3 credits	U, 3, 4, 5
LAB1	Laboratory work	3 credits	U, G

Grades

Four-grade scale, LiU, U, 3, 4, 5

Department

Institutionen för datavetenskap

Director of Studies or equivalent
Jalal Maleki

Examiner
Erik Berglund

Education components
Preliminary scheduled hours: 36 h
Recommended self-study hours: 124 h

Course literature

Additional literature

Other
Literature will be referenced on the course website.

Common rules

Regulations (apply to LiU in its entirety)

The university is a government agency whose operations are regulated by legislation and ordinances, which include the Higher Education Act and the Higher Education Ordinance. In addition to legislation and ordinances, operations are subject to several policy documents. The Linköping University rule book collects currently valid decisions of a regulatory nature taken by the university board, the vice-chancellor and faculty/department boards.

LiU's rule book for education at first-cycle and second-cycle levels is available at http://styrdokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva.