

REA2061 Mathematics for Game Programming - 2010-2011

Course code: REA2061

Course name: Mathematics for Game Programming

Course level: Bachelor (syklus 1)

ECTS Credits: 10

Duration: Vår

Language of instruction: Norwegian

On the basis of: REA1101 Mathematics for computer science

Expected learning outcomes:

After completing the subject the students should

- understand mathematics behind 3D-geometry
- understand transformations in OpenGL/Direct3D
- be able to analyze and manipulate datastructures related to 3D-graphics
- have improved their skill to understand and use mathematics

Topic(s):

- Projective spaces and homogeneous coordinates
- Transformastions in OpenGL/Direct3D
- Complex numbers
- Quaternions
- Mathematical logic
- Combinatorics and probabilities
- Parametrization of curves and surfaces. Fundamental differential geometry
- Spline functions
- Differential equations
- Taylor polynomials
- Diskretizationg and simplest possible numeric solution of ordinary differential equations.
- Numerical solutions of second order differential equations.
- Runge Kutta: numerical solutions av ordinary differential equations.
- Recurrence relations
- Random generators
- Noise functions
- Newtons method for finding zeroes

Teaching Methods: Lectures

Form(s) of Assessment: Written exam, 5 hours

Grading Scale: Alphabetical Scale, A(best) – F (fail)

External/internal examiner: External + internal examiner

Re-sit examination: Ordinary Re-sit exam

Tillatte hjelpemidler:

Coursework Requirements: 5 Compulsory assignments

Academic responsibility: Faculty of Computer Science and Media Technology

Course responsibility: Førsteamanuensis Nils Fjeldsø

Teaching Materials: Textbook: Kalkulus av Tom Lindstrøm, Universitetsforlaget

Handouts.

Publish:

Yes