

t.CGR - Computergrafik

Person responsible for the course: Peter T. Früh, frup
Credits: 4
Valid for: 2010/2011
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Learning objectives:

- The students know the basics of computer graphics (primarily 3D).
- They are capable to develop animated and interactive graphic applications with standardized APIs.

Course content:

- Graphics pipeline
- Mathematical foundations (transformations, homogeneous coordinates, perspective viewing)
- Light computations
- Shading and textures
- OpenGL
- Color theory, blending, antialiasing
- Collision detection
- Raytracing
- Curves and surfaces
- Graphics Hardware and GPU programming (GLSL)
- Advanced topics (shadow-, environment, bump mapping, particle animation)

Practical work:

- Developing an application in OpenGL
- Developing a ray tracer
- Developing an application in GLSL (GPU programming)

Previous knowledge:

- Programming in C
- Linear algebra, geometry (transformations)

Teaching method:

Type of lesson:	Number of lessons per week:
Lecture	14*2
Tutorial/Practicum	14*2
Group teaching	
Block instruction	
Seminar	

Assessment:

According to the table or as specified in writing by the lecture at the beginning of the semester!

Number	Type	Weighting
1	Final exam	60%
1	Intermediate exam	15%
4	Assignments	25%

Language of instruction:

German, English documentation

Instruction material:

- Powerpoint slides (see www.zhaw.ch/~frup/cgr)
- Complementary: F.S.Hill, "Computer Graphics Using OpenGL", Prentice Hall 2007, ISBN 0-13-149670-0

Comments:

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