Computer Graphics

Syllabus Number 4E205
Special Subjects
Elective 2 credit

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1. Course Description

This course deals with the basic theory of the computer graphics (CG). This course covers 3DCG modeling and rendering techniques, generation and processing of digital images and the computer systems for 3DCG production.
This course is related to diploma policy 2.

2. Course Objectives

By the end of the course, students should be able to do the following:
- explain basic technologies in the CG.
- explain various modeling technologies.
- explain various rendering technologies.
- acquire the configuration of the computer animation.
- acquire the knowledge of the generation and processing of digital images.
- acquire the knowledge of the computer systems for 3DCG production.

3. Grading Policy

Grading will be decided based on repots (10%) and term-end examination (90%).
Feedbacks on reports and examinations will be given on LMS.

4. Textbook and Reference

Textbook
"Visual Information Processing", CG-Arts Association
The Learning materials are published on the LMS.

5. Requirements(Assignments)

The students are expected to review contents and short tests before starting new topics. It takes approximately one hour to finish this work.

6. Note

7. Schedule

[1] Visual information processing and digital camera model
[2] Coordinate systems and modeling
[3] Optical models in visual information processing
[4] Tint conversion
[5] Spatial filters
[6] Modeling (1) polyhedron, parametric surfaces
[7] Modeling (2) polygon surfaces
[8] Rendering (1) rendering processes, shading
[9] Rendering (2) global illumination, non-photorealistic rendering
[10] Animation (1) configuration of animation, key frame animation
[11] Animation (2) character animation
[12] Image analysis
[13] Feature extraction, pattern recognition
[14] Scene restoration
[15] Visual information system