MM3251

Study program / course: Mechanical Engineering

Type and level of study: Master academic studies

Course: Computer graphics

Lecturers: Nenad D. Filipovic, Gordana Jovicic

Status of course: Elective for module M_5, III semester

Number of ECTS: 6

Precondition: Algorithms and data structures, programming language

The objective of course

Objective of course is introducing of students with basic computer graphics as visual signal processing, edge detection, line segmentation, texture processing, scene characteristics, motion, stereovision, image processing. Also students will be able to design a complex project from computer graphics.

The outcome of course

After this course and final exam from course Computer Graphics, students can be involved in scientific projects from this popular scientific discipline. Students will be able to use visual processing signal, image processing methods, three-dimensional image from computer tomography, using Fuzzy logic in image processing. They can apply this knowledge in software industry, software development for education, movie animation, spots, military industry, automotive industry, biomedical industry etc.

Syllabus

Theoretical study

Visual processing signal. Edge detection. Line segmentation. Image system analysis. Textures. Scene characteristics. Motion. Stereovision. Shape recognition. Image processing from CT scanner and ultrasound device. Thermo-vision images. Three-dimensional image reconstruction from computer tomography. Image fusion. Fuzzy logic in image processing. Shape recognition.

Practical classes Practices, Research study.

Recommended reading

1. Dave Shreiner, Mason Woo, Jackie Ne, OpenGL водич за програмере, Компјутер библиотека Чачак, 2007.
2. Edvard Angel, Interactive Computer Graphic A Top-Down Approach with OpenGL, ADDISON-WESLEY, 1997.

The number of hours of active teaching:				Other classes:
Theory: 3	Practical classes: 1.4	Other forms of teaching: 0.6	Research study: 0	1

Methods of teaching

Evaluation of knowledge			
Pre-final exam obligations	**points**	**Final exam**	**points**
Activities during the classes:	**5**		
Practical classes:			
Colloquiums(s) :		Oral exam	**30**
Seminar(s) :	**65**		