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TEACHING COMPUTER GRAPHICS AT FACULTY OF MINING AND GEOLOGY

At the Faculty of Mining and Geology VŠB – Technical University of Ostrava the study programs of several fields contains the computer graphics. Our department of mathematics and descriptive geometry is the supervisor of this subject for two fields – physical engineering and engineering geodesy. The computer graphics is a compulsory subject, it lasts one semester and enda with an exam. The course belongs to the subjects of the theoretical basis of the study. For students of physical engineering there are two hours lecture and two practical lab session per week at the fourth semester, for students of engineering geodesy it means three hour lecture and two practical in lab per week at the fifth semester.

Our objective is to introduce the students to the foundations of computer geometry and inform them about technical and programming tools for computer graphics.

Syllabus of the subject: Homogeneous co-ordinates and matrix representation, transformations of co-ordinates and points, 2D transformations, 3D transformations, analytical expression of the orthogonal and oblique axonometric and perspective projection, fundamental types of interpolation and approximation curves (Lagrange, Ferguson, cubic spline, Bézier, Bspline), fundamental types of surfaces (Coons, Ferguson, Bézier), graphics hardware (input and output tools, graphics cards), raster and vector graphics, basic raster algorithms for drawing lines, circles, ploygons etc., Turbo Pascal graphics procedures (unit Graph), drawing possibilities in software.

Courses take place at computer rooms. During the lessons we use known software packages (Maple, solid modeler) and software created by teachers or students. The students have one assignment during the course – to create the computer's program for solution of elementary example with graphical output using either procedures of unit GFS or graphical Turbo Pascal library.

NAUCZANIE GRAFIKI KOMPUTEROWEJ NA WYDZIALE GÓRNICTWA I GEOLOGII

Autor omawia zakres i program przedmiotu grafika komputerowa, realizowany na Wydziale Górnictwa i Geologii Uniwersytetu Technicznego (VŠB) w Ostrawie.