

## APPLICATION OF 3D GRAPHICS IN DIDACTICS AND RESEARCH

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**Abstract.** In the presentation the examples of application 3D graphics in didactics and research in the selected fields will be shown. The animation and modeling software will be also introduced in the presentation

**Keywords:** visualization, computer animation, didactic solutions. multimedia presentation,

The world around us is described by the 3 dimensions of space and dimension of time. To make the understanding of some phenomena occurring in this four dimensional space easier we can use virtual models of the real objects.

Creating visualization and animation of 3d models existing or being designed devices, buildings and structures has a lot of a positive features and is used very often. Nowadays in such fields as architecture, civil engineering, industrial design and ergonomics it's hard to imagine the project phase without visualization of the final appearance of the designed object.

The elaborations of concepts presentation in a form of computer visualizations are characterized by easy perception for the recipient and possibility of creation of different versions of solutions as far as color, structure and composition

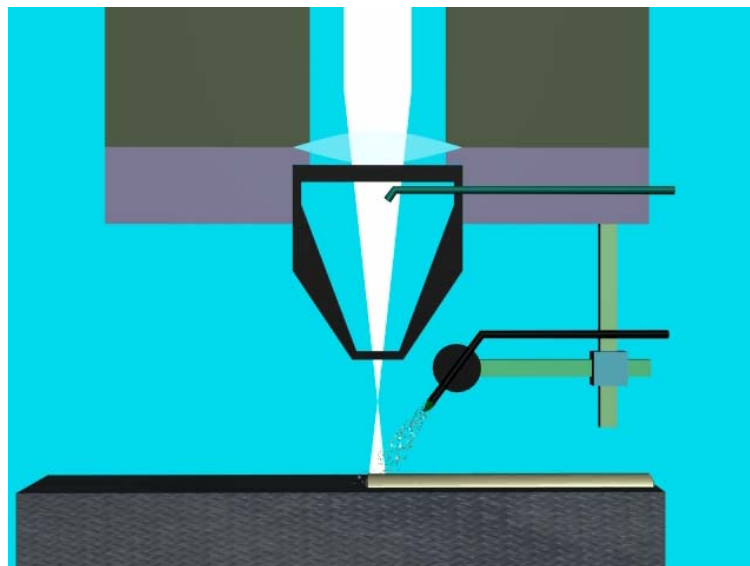


Fig 1. An example of visualization of technological processes.

The main purpose of application 3D graphics in didactics and research is to present difficult and complicated phenomena in simple and spectacular way, to cause the interest of the recipients, stimulating of thinking, reflecting and drawing conclusions. The image has a essential significance in reception of the information. This fact is important in methodology of teaching. Sight is for humans one of the major senses, and together with hearing it gives possibility to assimilate about 95% of transmitted information.

Animation plays a special role in e-learning. The lack of direct contact with the teacher is compensated by using the different channels of transmitting the content like: text, sound, picture and animation. It involves various kinds of activities by the students

The following features of the animation in e-learning can be observed:

- It helps the teaching regardless of age, education and perception of the recipients
- It brings the students closer to an inaccessible reality (things from the outside of their surroundings, very small details like the phenomena of the micro world)
- It is possible to stop and repeat selected part of the presentation.

The last features concern the movies in courses placed on data carriers like CD or DVD and also published in the Internet. Fast access to the video in the web page is possible by using streaming media technology and Flash.

In the presentation the examples of application 3D graphics in didactics and research in the following fields will be shown:

- Architecture,
- Geometry and Engineering Graphics,
- Geology and tectonics,
- Mechanic and automatic,
- Materials engineering,
- Ergonomics,
- Reconstruction of accidents,

The animation and modeling software will be also introduced in the presentation.