



# **LTTA 6 - POLAND**

## **3D DESIGNING**

On 24-28.04.2023 the last mobility took place, in Poland. The topic of this international LTTA was 3D designing and printing. All the participants attended numerous workshops working on the newest tools.

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## 3D DESIGNING

### What have we seen, what have we learnt?

This week was filled with travels, working, cooperating and having fun. We had a chance to sightsee the Old Town in Gdańsk and Ustka. While being in Gdańsk, we visited the Science Centre "Hewelianum", where we took part in workshops about mathematics and physics phenomena in everyday life. We finished the trip with a guided tour through Gdańsk to see scientific patterns in architecture.

In Ustka, though, the students faced a real challenge. They had to create sand castles or sculptures, take photos of them to be ready to transform them into mathematical algorithms used for 3D printing.

### A bunch of information about 3D

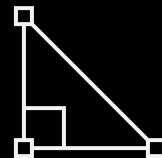
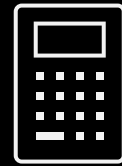
To learn about that issue we were working with the Autodesk Fusion 360 program, a professional tool used for advanced designs. The task was simple – we went to the beach to create sand structures. Then after taking loads of photos, we transcribed them into algorithmic patterns and formulas to make the program understand our pieces of art. During both workshops we were working in small international groups, so that each participant after learning themselves how to use the program, will be able to teach their peers in their our school after this LTTA is completed.

### What is 3D designing?

3D graphics computer projecting, also known as computer-generated imagery (CGI), is a remarkable technology that has revolutionized the world of visual storytelling. By utilizing advanced algorithms and powerful hardware, this technique allows artists and designers to create virtual worlds, lifelike characters, and stunning visual effects with unparalleled realism.

With 3D graphics computer projecting, it is possible to bring imagination to life. Whether it's in movies, video games, architectural visualization, or product design, this technology enables the creation of immersive and visually captivating experiences. It empowers artists to manipulate light, texture, and perspective, giving them complete control over every element in a scene.

The process starts with creating a three-dimensional model, which serves as the foundation for the virtual environment. Artists carefully craft the model by defining its shape, texture, and behavior, ensuring it aligns with the intended vision. Then, utilizing sophisticated rendering



techniques, the computer calculates how light interacts with the model, creating realistic shadows, reflections, and refractions.

The power of 3D graphics computer projecting lies in its ability to simulate real-world physics, making the virtual objects appear as if they exist in our own reality. This opens up endless possibilities for creativity and innovation, allowing artists to push the boundaries of imagination and deliver experiences that captivate and engage audiences.

Moreover, the advancement of hardware capabilities has significantly accelerated the rendering process, making it possible to create complex and detailed visuals in real-time. This has led to breakthroughs in fields like virtual reality (VR) and augmented reality (AR), where 3D graphics computer projecting plays a vital role in delivering seamless and immersive user experiences.

In conclusion, 3D graphics computer projecting is a groundbreaking technology that empowers artists and designers to create visually stunning and realistic virtual environments. It continues to push the boundaries of what is possible, bringing imagination to life and captivating audiences across various industries.

3D designing and printing “Let’s STEM up our education”

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