

## **ABSTRACT**

The aim of this thesis is to design, implement, and evaluate an educational model that integrates 3D printing into the teaching process, linking computer science and mathematics education with the goal of increasing student engagement and understanding. Furthermore, it explores the challenges associated with the use of 3D printing and 3D printers in mathematics teaching and subsequently proposes recommendations and creates materials that would allow the effective use of this technology in mathematics education. The collected data was analyzed using both quantitative and qualitative methods.

The educational model was designed around the topic of stereometry and was implemented through an educational experiment involving 5 classes of a vocational high school. The conclusions drawn from the data analysis are consistent with theoretical assumptions about increased motivation and success of students when using 3D printers in education.

A meeting was organized for teachers to share best practices on the topic of using 3D printing and 3D printers in mathematics teaching. Following group discussions with teachers, challenges faced by teachers (or schools) when integrating 3D printing into their curriculum were identified and described in two separate chapters. Additionally, a set of 3D models of cross-sections of solids was created, which is attached to this thesis in the .stl and .gcode formats.

## **KEYWORDS**

3D print, 3D printer, mathematics education