

VIOREL ENE¹, ELENA HELEREA¹, TIBOR BEDŮ², MARIUS BENȚA³

Abstract. The paper herein takes a close approach to the hour bell (the bell striking the hour) incorporated in the Council House Tower of Brașov. The first hour bell, dating back to 1520, broke down after the great fire in 1689. In 1690 a new bell was cast that still exists nowadays. For this bell determinations were made as regards the analytical equations of the curves of the exterior and interior profiles, as well as its thickness in longitudinal section. The calculations were based on specific measurements as well as on graphical and graphical-analytical methods. By comparing these classic methods of calculus the conditions were created for a computer-aided calculation attempting to determine the variation functions of the curves of the exterior and interior profiles of the bell on the basis of the correlation and regression methods. Following the determinations regarding the analytical equations of the curves of the exterior and interior profiles of the hour bell, the bell's volume (the active part) can be determined both graphically and mathematically. The analysis of the material's chemical composition the bell is made from (bronze in this case) lays at the basis of further determination concerning the density. Knowing the volume and the density, the mass of the active part can be determined. In the particular case of the hour bell in the Council House Tower of Brașov, this bell emits the sound F sharp of the lower octave with harmonic in C sharp.