# SPATIAL CO-ORDINATES OPTIMIZATION OF CIVIL ENGINEERING AND BUILDING SERVICES FACULTY'S TOPOGRAPHIC NETWORK USING GPS TECHNOLOGY

**Daniel LEPĂDATU[1], Daniel COVATARIU [1], Loredana JUDELE[1], Gabriel SĂNDULACHE[2], Ana-Raluca ROŞU[1], Maximilian DIAC[2]**

e-mail: daniel.lepadatu@gmail.com

**Abstract**

This paper aims to optimize the spatial coordinates of the locating terminals points of our faculty, initially determined using GPS technology. Additional measurements were performed to one year interval with another GPS receiver. So was obtained a new set of coordinates that was used to obtain a better determination thereof by the average of the two determinations. In order to determine the coordinates of the new points was used GNSS Permanent Stations National Network using RTK method: RTCM (Radio Technical Commission for Maritime Services). Measurements were performed with GPS SOUTH S82T and GPS SOUTH S82V, whose field book has implemented software transcomputation real-time geographic coordinates obtained in STEREO-70 coordinate system. Network of permanent GNSS stations has used fixed station IASI_2.3 and virtual station RO_MAC_3.1_GG. Solutions for new measured points were fixed, the determination's accuracy being ranged from 0.034-0.010 meters. Following these two rounds of measurements of the spatial coordinates of locating points of the faculty network using GPS technology we obtained a set of coordinates that increase their accuracy. But also shows that errors occur are due the type of used receiver and satellite position based on the time of determination, or other types of influences. These errors will be highlighted in this study to show that sometimes it are important and can`t be neglected during training measurements with these modern tools.

**Key words**: spatial coordinates optimization, locating network, Global Positioning System – GPS