**SUMMARY**

Near-Earth Objects (NEO) pose a threat to our planet Earth and understanding their physics and mechanics can help us best understand and prepare for any future collisional trajectory with our planet. Among those objects are the Near-Earth Asteroids (NEAs), which revolve around the sun and close to Earth. These asteroids do not belong to the Main Belt Asteroid (MBA)

This thesis aims to conduct photometric analysis and light curve creation to obtain the rotational period of selected NEAs. This is done from publicly available photometric data. The process begins by using data that combines bot FITS images and datasets from ALCDEF and MPO. The set FITS (Flexible Image Transport System) undergo Batch image processing and plate solving to combine all images for photometric analysis. Then, they produce the photometry measurements needed to create the light curves. The datasets of other NEAs are directly used to make the photometric measurements.

Finally, analysing the light curves can help produce the rotation period of each NEA using Fourier analysis period determination. The period data is then used to analyse each of the NEA’s rotation and a further orbit propagation to perform a complete orbit determination of each of the NEAs.

**Keyword: NEA, Photometry, Light curves, period.**