



# Navigation Plan: Earth to Moon

**Team name:** Silver Stars

**Spacecraft name:** Cygnus

**Launch time and date:** 10<sup>th</sup> April at 12 o'clock

**Duration of journey:** 6 days

**Expected impact time:** 16<sup>th</sup> April at 8 o'clock

**Description of route and orbital paths:** In order to be able to reach the Moon, our spacecraft must pass from the initial orbit to a tangent one, and then to the final orbit. The next step will be hitting the Moon, in its North Pole.

**Navigation instruments:** Cygnus is a powerful spacecraft made of components that perform various essential functions to achieve our goal. The components are the following (from top to bottom): the command module, service module, lunar module and lunar module adapter.

**Methods of guidance, navigation, control, and tracking:** After launching the spaceship, it will follow (and circle) Earth's orbit. Next it will continue by passing on a tangent elliptic one. After completing this one as well, it will follow its journey's final orbit, the Moon's. Once reaching Moon's lunar surface the robot receives from Earth information and coordinates of the most recent comet hitting the moon near permanently shadowed lunar craters. When reaching the crater, he scans the chemical composition. If it finds hydrogen in proportion of 66.6% and oxygen, 33.3% then it found water and takes a sample to bring it on Earth for further investigation.

## Navigation Map: Earth to Moon

