Egyptian Space Agency (EgSA)

Satellite Orbit Design and Analysis Laboratory

Services Provided:

- Spacecraft orbit design and mission analysis
- Spacecraft orbit estimation
- Spacecraft orbit access and operation
- Spacecraft orbit determination
- Spacecraft orbit control
- Spacecraft orbit propagation

Facilities Available:

- Systems Tool Kit (STK)
- FreeFlyer
- EgSA customized software for orbit design and operation
- Matrix Laboratory (MATLAB)

Samples from our Projects / Products:

Spacecraft orbit design and mission analysis of:

- Mini satellite MisrSat-2
- Micro satellite NExSat-2

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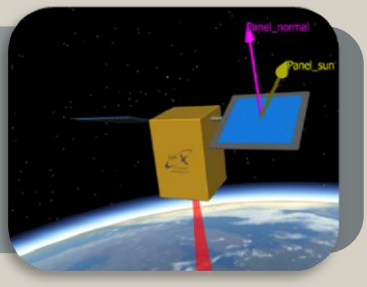
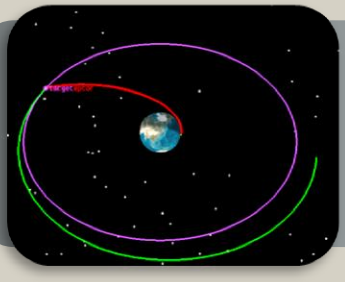
Global Online Education Website:
egsa-space-technology-portal.com

Part of our Facilities / Services:

Satellite 3D model importing to FreeFlyer

Satellite 3d model has been previously generated using CAD programs (Ex: Solidworks, Inventor, 3DS Max). Satellite 3ds file is imported to FreeFlyer to simulate satellite motion around the earth, and calculate the Sun angle with respect to Satellite solar panels.

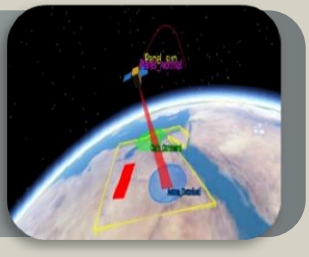


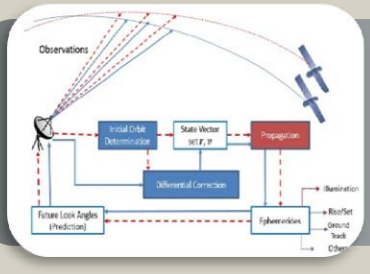


Orbit Maneuver

We have our own package of orbit maneuvers program which include: circulation maneuvers, escape maneuver, maintenance orbit. Also, determination of the point of closest approach of two orbits, and uses STK or FreeFlyer to perform such missions.

Orbit design: design of different orbits, such as (Sun Synchronous - Repeating Ground Trace - Critically Inclined), based on the following factors: altitude, sun elevation angle, and roll angle, without or with the propulsion system. The results are: determination of local mean solar time, coverage area, change of the local solar time of the ascending node, orbit decay, and DeOrbit Satellite.



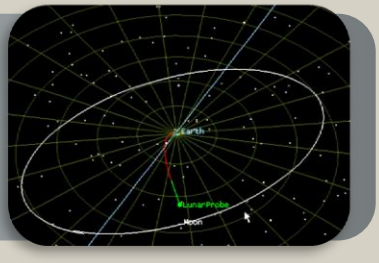


Determination, propagation and estimation of orbits

We have our own SW package of determination, propagation, and estimation of orbits. Satellite Orbit Determination (OD) can be described as the method of determining the position and velocity (i.e., the state vector, state or ephemeris) of an orbiting object, such as an interplanetary spacecraft or an Earth-orbiting satellite.

Lunar Mission

We have designed a complete lunar mission to the moon, starting with the orbit design, then rotating around the earth, then reaching the moon, revolving around the moon, calculating the lunar track for satellite and coverage area.



And many others... Contact us to know more about our Services.

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