

ESMD-14

Title: Electric Propulsion Systems

Sponsor: NASA Johnson Space Center, Engineering Directorate, System Architecture and Integration Office

Team Personnel: 2 EE, 1ME, 1 Physics majors

Expected Person-Hours: 1000

Duration: Fall 2008 - Spring 2009

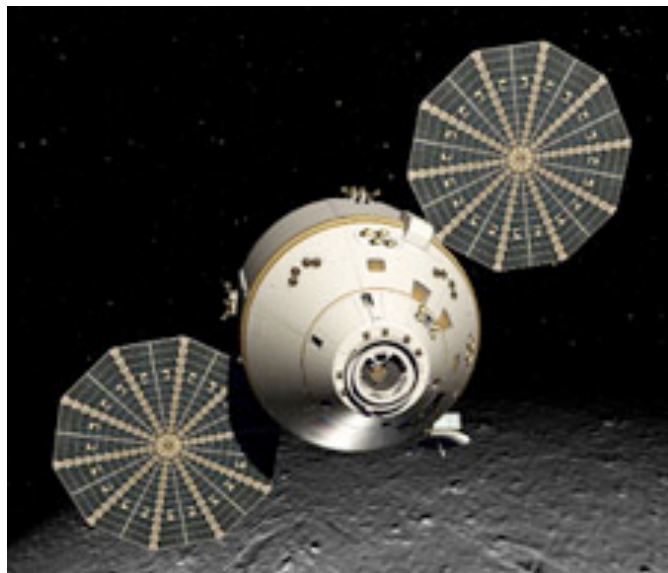
Statement of Work:

America will send a new generation of explorers to the moon aboard NASA's Orion crew exploration vehicle. Making its first flights early in the next decade, Orion is part of the Constellation Program to send human explorers back to the moon, and then onward to Mars and other destinations in the solar system.

Orion will be capable of carrying crew and cargo to the space station. It will be able to rendezvous with a lunar landing module and an Earth departure stage in low-Earth orbit to carry crews to the moon and, one day, to Mars-bound vehicles assembled in low-Earth orbit. Orion will be the Earth entry vehicle for lunar and Mars returns. Orion's design will borrow its shape from the capsules of the past, but takes advantage of 21st century technology in computers, electronics, life support, propulsion and heat protection systems.

In this project you will:

- Investigate new forms of electric propulsion that can be used for future exploration objectives. Build prototypes of existing methods of electric propulsion and compare them to alternate methods developed under this effort.
- Research recent breakthroughs in propulsion and develop quantitative results documenting their characteristics.
- Develop new theories of advanced propulsions systems and build prototypes to test concepts.



Orion orbits the moon with disc-shaped solar arrays tracking the sun to generate electricity. Image Credit: Lockheed Martin Corp