

## Training Opportunity for Luxembourgish Trainees

Reference	Title	Duty Station
LU-2023-HRE-ESM	Artemis Orion European Service Module (ESM) Project	ESTEC, Noordwijk, The Netherlands

### **Overview of the mission:**

Each Artemis mission will fly a dedicated ESM, which provides essential resources to the Orion spacecraft and its crew, namely:

- electrical power generation via solar panels
- thermal control via heaters and radiators
- chemical propulsion and spacecraft attitude control via 33 thrusters
- control electronics
- breathing air (oxygen & nitrogen) and water for the crew

These subsystems are all housed within and supported by a mechanical framework structure, which also supports the Orion Crew Module and its weight during the launch on the SLS vehicle.

Approx. one ESM is produced per year, in a serial-production environment, to support consecutive Artemis & Orion missions to the moon and back to Earth. The ESM project is a long-term activity reaching into the 2030s. ESM-1 has flown successfully on Artemis 1 in late 2022, and 5 more are in various stages of production. The contract for three additional ESMs is in work.

Given its multi-year character, the ESM project is facing constant fluctuations in its team composition, with team members retiring or leaving, and new members joining. Therefore, it is critical to have a dedicated, compressed documentation package available, which describes the ESM, its subsystems, their peculiarities and design evolutions, as well as their interactions with one another. Such documentation package shall be kept in a comprehensive format, such that it can be read within no more than 1-2 days. The documentation package shall be composed of descriptions and graphics and is intended to provide newcomers a solid starting point and a fundamental understanding of the ESM design and its operation, allowing new project team members to quickly gain a robust overview of the ESM architecture, besides being used as a useful long-term reference.

### **Overview of the field of activity proposed:**

As a LuxYGT, you would be tasked with creating this documentation package, based on reviewing and condensing existing project documentation, coupled with conversations with team members, and physical site visits to the ESM integration facility at Airbus in Bremen, Germany.

The candidate will gain a thorough understanding of the complex ESM design, its concept of operations, its mission profiles, its history of anomalies and their mitigations, its built-in hazard mitigations, its assembly integration and test flow, and its interfaces with other flight elements.

The candidate will also gain in-depth knowledge about basic spacecraft design aspects, production processes, project milestones, as well as quality assurance processes and configuration management practices.

**Required education and skills:**

- You should have just completed or be in the final year of your Master' s degree in a technical or scientific discipline.
- Good interpersonal and communication skills
- Ability to work in a multi-cultural environment, both independently and as part of a team
- Fluency in English and/or French, the working languages of the Agency