

## Training opportunity for graduates/young professionals from Switzerland

Reference	Title	Duty Station
CH-2020-HRE-P	Gateway I-HAB Mechanisms Engineering	ESTEC
<p><b><u>Overview of the unit's mission:</u></b></p> <p>The Cislunar Gateway is a human-tended infrastructure orbiting the Moon in a so-called Near Rectilinear Halo Orbit (NRHO). One of the ESA contributions to the Gateway is the International-Habitation (I-HAB) module, that will be designed and developed by an Industrial consortium led by TAS-I as Prime.</p> <p>The I-HAB module will provide:</p> <ul style="list-style-type: none"> <li>• a habitable system capable to maintain an environment suitable for sustaining human life throughout the duration of a mission and capable to accommodate needed crew systems;</li> <li>• docking ports and resources to attached elements, namely other pressurized modules</li> <li>• resources to scientific experiments accommodated in the interior and on the exterior of I-HAB.</li> <li>• external attachment points for the Gateway Robotic arm and internal attachment points for Gateway Internal Robots, capable to perform simple tasks while the Gateway is un-crewed.</li> </ul> <p>The I-HAB module is going to be designed and developed in cooperation with other International Space Agencies, namely JAXA, NASA and CSA, that are contributing to some key subsystem and equipment such as the life support subsystem, thermal loop pumps, power batteries, safety equipment, common Gateway items and the external robotics interfaces.</p> <p>The I-HAB project team is part of the HRE Development Projects Group, that is responsible for the procurement of the Gateway-related infrastructure, i.e. Orion ESMs, I-HAB and ESPRIT.</p> <p><b><u>Overview of the field of activity proposed:</u></b></p> <p>In this context, as part of the ESA I-HAB team, the following activities are proposed:</p> <ul style="list-style-type: none"> <li>• Task 1 - Collect status of all technologies available and/or to be started in the field of mechanisms for deployable systems (this includes collecting data from other space and aerospace projects activities and literature data), covering design, development and testing aspects;</li> <li>• Task 2 - Review mechanisms requirements and design for Gateway I-HAB module applications, namely deployable radiators, hatches opening/closing interfaces, deployable thermal covers, intra-vehicular robots interfaces and docking mechanisms;</li> <li>• Tasks 3 – Critically review the technology readiness level (TRL) of the mechanisms proposed by Industry or I-HAB, and support technology development activities (TDA), as applicable;</li> <li>• Task 4 – Participate in the I-HAB Module project reviews with the Industrial contractor, in support to ESA I-HAB project team;</li> <li>• Task 5 - Support Gateway working groups and other related projects at the request of the supervisor.</li> </ul> <p>In performing the activities above, you will be exposed to team work and will be able to develop interpersonal skills, as well as capacity to work both independently and as part of a team.</p> <p>You are encouraged to visit the ESA website: <a href="http://www.esa.int/esa">www.esa.int/esa</a></p> <p><b><u>Required education:</u></b></p> <ul style="list-style-type: none"> <li>• Master-level degree in Mechanical and/or Structure and/or Mechanism Engineering;</li> <li>• Good interpersonal and communication skills;</li> <li>• Ability to work in a multicultural environment, autonomously and as part of a team;</li> <li>• Fluency in English and/or French, the working languages of the agency.</li> </ul>		