

Training Opportunity for Luxembourgish Trainees

Reference	Title	Duty Station
LU-2023-TEC-MTT	Thermal Control Engineering	ESTEC, Noordwijk, the Netherlands
<p><u>Overview of the mission:</u></p> <p>The Thermal Division is the Agency's centre of competence in all areas related to thermal engineering, covering development (R&D), design and verification.</p> <p>Within this framework, the Thermal Control Section is in charge of providing support to projects on all thermal control aspects and the development of thermal hardware technologies, while the Thermal Analysis and Verification Section is the focal point for analysis methodologies, software tools and experimental/test services executed in the Mechanical Systems Laboratory.</p> <p>http://www.esa.int/Our_Activities/Space_Engineering_Technology/Thermal_Control</p> <p>You are encouraged to visit the ESA website: http://www.esa.int</p>		
<p><u>Overview of the field of activity proposed:</u></p> <p>You will, as a LuxYGT in the Thermal Control Section, contribute to the following activities:</p> <ol style="list-style-type: none"> 1. Thermal design and analysis: Perform thermal design and associated analysis, including steady state/transient analyses of instruments and satellites, following familiarisation with project requirements and the Agency's tools (ESATAN-TMS). This may also include in-flight correlation of thermal analysis models for ESA projects. 2. Cryogenics: Investigate cryogenic technologies (active and passive coolers) for applications in future ESA spacecraft and launchers. 3. Heat transfer and heat rejection: Investigate heat transport technologies such as capillary and mechanically pumped two-phase loops, single-phase loops and heat pipes for thermal control. 4. Thermal protection: Investigate thermal protection technologies (both reusable and ablative) for ongoing and future missions (e.g. planetary exploration and sample return missions) and reusable launchers. 5. Generic thermal control technologies: Investigate innovative and advanced technologies for the Thermal Control Subsystem, e.g. tuneable infrared emittance coatings with electrochromic-based solutions, phase-change materials, heat pumps, etc. Investigate specific thermal technologies for small satellites and CubeSats. 		

Required education and skills:

- You should have just completed or be in the final year of your master's degree in physics, thermal or mechanical engineering. Depending on the activities selected from among those mentioned above, you should have basic knowledge of thermodynamics, radiative and conductive heat transfer, cryogenics, fluid/thermal simulations and computer systems.
- 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