

## Training Opportunity for Lithuanian Trainees

Reference	Title	Duty Station
LT-2018-TEC-EPB	Energy storage for Space applications	ESTEC
<p><b>Overview of the unit's mission:</b></p> <p>The Power Systems, EMC and Space Environment division (TEC-EP) is responsible for all aspects of power systems required for ESA spacecraft and payloads. The division's activities cover power generation, power management, electromagnetic compatibility, energy storage and space weather. The energy storage section provides specialist support in electrochemical energy storage (such as batteries, fuel cells and super capacitors) to current ESA missions and development projects. The section is also responsible for ESA R&amp;D activities in the energy storage domain, working on internal activities as well as collaborating with industry and academia throughout Europe developing future energy storage technologies. The work of the section is supported by the Battery Life Testing Facility on site at ESTEC.</p> <p>Energy storage is going through unprecedented change in the terrestrial market and cross-over into the Space sector is likely to accelerate significant development across the Space energy storage value chain. ESA activities are at the cutting edge of the technology development and our research covers a wide spectrum of activities; from engineering improvements in battery component design, advance analysis of limited telemetry to create a detailed picture of battery performance, to collaborating in development projects on fundamental material advances.</p>		
<p><b>Overview of the field of activity proposed:</b></p> <p>Major challenges facing the Space energy sector and possible research areas:</p> <ul style="list-style-type: none"> <li>• Obsolescence management of validated materials <ul style="list-style-type: none"> <li>○ Development of rapid characterization methodologies to get new technologies on to missions faster</li> </ul> </li> <li>• Spin-in technology from the terrestrial sector <ul style="list-style-type: none"> <li>○ Capitalize on the development activities occurring in other fields and implement space ready solutions</li> </ul> </li> <li>• Specialization of energy storage components for space requirements <ul style="list-style-type: none"> <li>○ High energy</li> <li>○ Ultra-long life capability</li> <li>○ Low temperature capability for planetary missions</li> <li>○ High power</li> </ul> </li> <li>• Modelling and characterization of energy storage technology to enhance space craft system studies, determine the status of in-orbit technology and allow rapid troubleshooting.</li> <li>• Developing abuse testing protocol to assess safety of batteries</li> <li>• Fuel cell feasibility study and technology identification for future exploration missions</li> </ul>		
<p><b>Required education:</b></p> <p>The applicant should have completed higher study programme in electrochemistry or a related field in Energy Storage engineering. A solid knowledge of electrochemical measurement and characterization techniques would be and experience using LabView would be an asset</p>		