

Training Opportunity for Irish Trainees

Reference	Specialist Area	Duty Station
IE-2019-OPS-SC	System Engineer in the Clean Space Office	ESTEC
<p>Overview of the Division missions: ESA develops technologies to secure the future of space activities by protecting the environment. It is pursued via: <u>Eco-design</u> Developing cleaner space missions requires the understanding of their environmental footprint from the design phase to their end of life. ESA has been pioneering the application of life cycle assessments to the space sector ranging from understanding the environmental impact of launch vehicles, satellites and ground segment. <u>Cleansat</u> Maturing the technologies necessary to achieve full compliance with space debris mitigation requirements. This is being carried out in a coordinated approach with system integrators and subsystem and equipment manufacturers. Space debris mitigation has been identified by all large European system integrators as the most impacting of new requirements for future missions and as a high priority for the evolution of current platforms, both for the institutional and commercial markets. Platforms capable to carry out uncontrolled re-entry or controlled re-entry will be necessary and require very distinct technologies. <u>Active Debris Removal</u> Satellites reaching their end-of-life need to be removed from protected regions, either to a graveyard orbit or to re-entry. Today, satellites are beginning to be designed to be removed or removable, but further technology developments are still needed to assure full application for all future spacecraft. On-orbit servicing is maturing and operations in space will need to be carried out in an updated and more sustainable manner.</p>		
<p>Overview of the field of activity proposed: The trainee will be involved in the office's tasks getting an overview of the office technology activities. However, in the course of 2019, the main focus will be on Design for Removal and close proximity operations. In the future satellites will be designed to be easily removed, as it is being done by the mega-constellations as well as by the future Sentinels. To this end, analysis and technologies will be to be developed to:</p> <ol style="list-style-type: none"> 1. Easily track satellite from ground and in space 2. De-tumble objects at end of life 3. Provide mechanical feature to allow an easy grabbling <p>Technical activities on these aspects are being carried out and the trainee will have to provide technical analyses to support the trade-offs as well participate to the progress meetings with suppliers. On the other hand, the chaser will have to be designed to perform sustainable close proximity operations which will allow the risk-free capture of the satellite to be removed or serviced. To this end, ESA is developing a series of technical guidelines on how to perform sustainable close proximity operations. The trainee will support the setting up of these guidelines carrying out simulations and participating to the technical meetings involving relevant ESA and industrial experts.</p>		
<p>Required Education: Master in Engineering Fluent in English</p>		