

Training Opportunity for Swiss Trainees

Reference	Title	Duty Station
CH-2019-TEC-MPC	Chemical Propulsion Assistant Engineer	ESTEC
<p><u>Overview of the unit's mission:</u> The Propulsion Engineering Section (TEC-MPC) has the following tasks:</p> <ul style="list-style-type: none"> • provide expert technical support and consultancy in launcher propulsion (liquid, including storable and cryogenic technologies, and solid propulsion) and spacecraft (various chemical propulsion technologies) to the Agency project teams responsible for the development of launchers and spacecraft, throughout all project phases; • contribute to the preparation of work plans in the areas of launcher and spacecraft propulsion in the Agency's technological programmes, • prepare and manage, from a technical perspective, ESA contracts for studies, experimental investigations and engineering development activities in space propulsion; 		
<p><u>Overview of the field of activity proposed:</u> You will perform model development and implementation, supporting engineering cross check activities. You will apply high-level methods to provide rough estimates for various engineering problems of spacecraft, following on-going development projects. Furthermore, you will support pre phase A studies, such as those performed in CDF (Concurrent Design Facility) sessions and will use these studies to improve the analysis tools. During all those activities you will have the opportunity to learn a great deal about various aspects of spacecraft propulsion systems and associated design problems, which are characteristic for the individual project phases.</p> <p>Overall you will deal with topics such as:</p> <ul style="list-style-type: none"> • performing trade-offs between different propulsion systems for given applications; • calculation of propellant and pressurant budget according to mission profile; • evaluation of overall engine performance for different propellant combinations, mixture ratios, pressure levels etc.; • analysis of propulsion feedline pressure drop and water hammer pressure spikes; • supporting of tests (water hammer, passivation, ...) in the propulsion laboratory; • analysis of end of life tank pressure evolution; • assessment of trajectories and resulting Δv needs; • set up and maintenance of a propulsion components database. 		
<p><u>Required education:</u></p> <ul style="list-style-type: none"> • Applicants should have completed or be in their final year of a university course at Master's level in engineering, physics, chemistry or similar discipline • General knowledge about space propulsion systems, as well as some programming experience are required for this task 		