

## Training Opportunity for Swiss Trainees

Reference	Title	Duty Station
CH-2019-TEC-EFE	Advanced techniques for the operation and characterization of Time and Frequency systems	ESTEC
<p><b><u>Overview of the unit's mission:</u></b></p> <p>The RF Equipment and Technology Section is responsible for the support to ESA Projects and the development of technology in the domain of Radio-Frequency and Time &amp; Frequency equipment and associated technologies. This encompasses passive and active devices, equipment, measurement techniques and associated software mainly for the needs of the space segment but also for the related ground segment such as user terminals and gateway stations. The section provides support to most ESA Application Programmes: Telecommunication, Navigation (in particular Galileo and its evolutions), Earth Observation and Space Science.</p>		
<p><b><u>Overview of the field of activity proposed:</u></b></p> <p>The objectives of the proposed Training Opportunity are the identification, implementation and validation of advanced techniques for the operation and characterization of Time and Frequency systems (ultra-stable oscillators, atomic clocks, time/frequency generation and transfer). Such systems represent key critical elements of a large number of ESA missions (i.e. Galileo, Earth Sciences, Telecom...) and therefore require state-of-the-art techniques for their operation and performance characterization. Furthermore, such techniques are usually operated over extended period of time (months to years) and therefore require high level of operability and robustness.</p> <p>In cooperation with staff and members of the RF Equipment and Technology Section Laboratory, the Training will include:</p> <ul style="list-style-type: none"> <li>- Analysis, identification and definition of the operation/characterization needs: operational environment (vacuum, temperature, magnetic field...), performance requirements (frequency stability, time stability and accuracy...)</li> <li>- Survey and analysis of available state-of-the-art techniques for operation and performance characterization (methods, hardware, software...)</li> <li>- Design, tailoring and implementation of the most suitable technique (including procurement of required items when needed)</li> <li>- Test, validation and experimentation (including long-term operation)</li> <li>- Final implementation in operational routine processes</li> </ul>		
<p><b><u>Required education:</u></b></p> <p>Applicants should have just completed a University course at Masters Level (or equivalent) in Physics or Electrical Engineering. Experience in testing and/or Engineering programming/simulation tools (e.g. Labview, MATLAB, C/C++, python...) is an asset.</p>		