

Training Opportunity for Portuguese Trainees

Reference	Specialist Area	Duty Station
PT-2012-TEC-SW.2	EGSE (Electrical Ground Support Equipment)	ESTEC

Overview of the Division missions:

The Software Systems Division is responsible for performing R&D activities within software engineering, flight software, modelling and simulation, EGSE and satellite functional AIV, and for supporting all ESA programmes on issues linked to these topics.

This in particular translates into

- Flight software engineering and provision of methods and tools, for specification, design, development and verification, including independent verification of mission critical software.
- Modelling and simulation of space missions and their elements, development and utilisation simulators and test benches; including full numerical emulation capabilities, hardware in the loop and real-time simulators.
- Development of EGSE systems and associated products, functional and electrical AIV.
- Leading standardisation efforts within above domains

In the particular for the domain of Software Simulation & modelling where this training opportunity exist the following topics are addressed.

- *Simulation and Modelling:* a number of test benches are being developed in support of satellite system and software design verification activities. Depending on the phase of the programme that includes System Concept Simulators, Functional Engineering simulators, Software Validation Facilities.
Common to all simulators is that they implement a spacecraft representative simulated environment in which flight system or software designs can be verified.
- *EGSE systems:* A new generation of EGSE & Mission Control systems is currently being developed, using modern software methods (e.g. Service Oriented Architectures). The division maintains an EGSE reference facility that will be used as the verification and demonstration facility of this new generation EGSE systems. The reference facility has to be enhanced to accommodate this capability.

Overview of the field of activity proposed:

The trainee shall work in the area of the Assembly Integration and Test (AIT) support tools. The main purpose of his activity is to improve an existing Electrical Ground Support Equipment (EGSE) Router, Sniffer application and to develop tools to ease the setup of different Spacecraft Operation and Control System (SCOS) configurations as used in the EGSE Reference Facility.

Participate in prototyping activities for the definition and implementation of reference implementation of the next generation EGSE system.

The tasks consist of developing/porting the applications, adapt/test and deploy it in the ESTEC Avionics Lab.

The training opportunity is to get familiarized with applications for spacecraft testing, to gain experience in router protocols and to participate in a small team of ESA engineers building a facility.

Required Education:

The trainee shall hold a Masters degree in Computer Science, Electrical Engineering or equivalent and have knowledge within following domains;

- Modern Software Engineering methods and tools
- Real-time embedded software systems.
- communication protocol
- Programming languages (e.g. C/C++ ,JAVA, Tcl/Tk).

Candidates should have good interpersonal and communication skills and should be able to work in a multi-cultural environment, both independently and as part of a team.