

Training Opportunity for Portuguese Trainees

Reference	Specialist Area	Duty Station
PT-2012-TEC-SW.5	Software Simulation & Modeling System Modelling	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.

Overview of the field of activity proposed:

The trainee shall work in the area of the Avionic Test Bed development which is a research activity performed in the EGSE and Ground Systems Section in TEC directorate.

The trainee shall participate in the development of System Concept Simulators, Functional Engineering Simulators and Software Validation Facilities to support several ESA projects. The tasks consists of implementing and testing Environment and Spacecraft Equipment models in C/C++, Simulink or Stateflow, developing Simulator Infrastructure functionalities and participate in projects Simulator reviews.

The training opportunity is to get familiarized with spacecraft equipment and its environment, to gain experience in modelling and simulation and to get involved in several ongoing ESA projects.

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
- Simulation environments (e.g. Matlab EcoSimPro, Modellica).
- Programming languages (e.g. C/C++).

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.