Training Opportunity for Portuguese Trainees

Reference	Title	Duty Station
PT-2017-TEC-ECC	**AOCS prototyping and test engineer**	**ESTEC**

Overview of the unit's mission:

The Control Systems Division is responsible for project support and technology development of space applications in the following areas.

- Design and implementation of Guidance, Navigation and Control Systems for Planetary exploration missions, Launchers, Ascent and Re-entry vehicles, Formation Flying Systems;
- **Design and implementation of Attitude and Orbit Control Systems for Earth Observation, Telecom, Navigation Satellites and Astronomy Observatories;**
- Failure Detection Isolation and Recovery of GNC and AOCS;
- **Technology development of AOCS/GNC sensors and inertial actuators**;
- Development of advanced control, estimation and optimization techniques and tools;
- Enabling R/D activities for Autonomous Rendezvous and Formation Flying, Ascent and Re-entry vehicles, Entry, Descent and Landing Systems, Vision-based and Hybrid Navigation;
- Performance analysis for launchers and re-entry vehicles including safety;
- **Definition, maintenance and operation of the necessary tools and laboratory facilities in support of above activities**.

The relevant areas for this training opportunity are highlighted in bold above.

Overview of the field of activity proposed:

The selected Trainee will be involved in the prototyping and testing of new AOCS components and hardware in the Control Hardware Laboratory with emphasis on one or more of the following:

- Star Tracker and image sensor testing, possibly including radiation effects modelling
- Sun sensor testing
- Magnetotorquer characterisation and testing (potential follow-up of Clean Space study on demisable magnetotorquer)

The Trainee will be responsible for the design and production of test equipment (both hardware and software), Test Plan production, Test execution and the development of test data analysis tools. The Trainee will also be responsible for producing test reports for each test performed and documentation for any test equipment and tools developed.

The Trainee will be involved in simulator and software prototyping using Automated Code Generation techniques, as well as in AOCS activities related to Avionics subsystem studies.

The Trainee will work full time in one or more of the above listed projects and will work together with a small team of ESA staff and other trainees who currently work part time on these activities.

Required education:

A Master degree in Electrical Engineering, Control Engineering, Aerospace Engineering, or a related engineering field is required. Good hands-on skills and practical experience are an asset.

A good awareness of electronic design (PCB layout, micro-controllers, basic circuit design) and software coding, hands-on laboratory or test experience and an awareness of the key parameters and methods of operation of AOCS hardware would be highly beneficial. Some experience in Visual C/Basic, Matlab, Excel and Labview would also be helpful.

A background experience in AOCS simulator as well as in Automated Code generation techniques would be considered as an asset.

A structured, logical approach to problems and work, with the ability to work both in a group and individually and to find simple, practical solutions to problems are considered key.

Candidates should have good interpersonal and communication skills and should be able to work in a multi-cultural environment. The candidates must be self-motivated, have good organizational and problem solving skills and a methodical approach to their work. The candidates must also have a flair for the analytical assessment of test results and the identification of trends and the ability to clearly document their work and results.

An enthusiasm for hands-on work is essential as is a willingness to learn new skills. Candidates must be fluent in English.