Training Opportunity for Portuguese Trainees

Title
Electronic Engineer

Duty Station
ESO HQ, Garching/Germany

Electronic Engineering Department Overview:
The electronic department at ESO is divided in 4 Groups, Development & Workshop, Instrument Electronic, Compliance Engineering and Detector Electronics. Our field of work covers development, Assembly and Test of whole Instrument electronics and subsystems. As well participating in review and follow up processes for all ESO programs. We have key component development in house, like detector readout electronics, Cryogenic–Vacuum Control and prototyping in all field of electronic. We ensure EMC compliance by own measurement and have an experiences workshop providing support for inhouse production and outsourcing.

Proposed field of activity:
The proposed opportunity consists of support in the detector and instrument electronic group with close links to the workshop. Interdisciplinary projects with the Optics department are possible.

Cryogenic &Vacuum Control Electronic: (EDET):

- The two Test Cryostats IMPACT and IRATEC shell receive a new control electronic, based on Beckhoff PLC and dedicated Beckhoff Modules. The Job is to replace the obsolete VME based control with nowadays PLC technology, ensuring current interfaces to the hardware. The human interface shall be a touch-panel from Beckhoff

Upgrading a 3D measurement machine in collaboration with the optics group (ETIE):

- An Obsolete 3D micrometer measurement machine shall be updated with a new Heidenhain position measurement device, selected already. This is an electro mechanic project where new encoder systems have to be integrated into the “old” measurement table connected to the new Heidenhain Measurement Computer.

Fiber Shaker electronic (EDEW):

- This project is a redesign of an existing electronic for an electro mechanical unit. It has a given microcontroller with firmware. The new designed electronic has to keep the controller interface. It includes schematic design and Layout with Altium, Preparing production / manufacturing information and final testing of the PCB. The project will be closely supervised, due to the given fixed interfaces.

Cryogenic Inductive Sensing system based on eddy current(EDET):

- TI has developed the LDC1000, an inductive to digital converter. In its application sheet various absolute position measurement systems are described. The job is to develop a test setup, capable of being installed in an Cryostat to evaluate the possible needs for ESO.

Required education:
Applicants should have completed or be in their final year of a university course at masters level in electronics or similar field. Practical experience in electronic hardware development and CAE tools for schematic and layout is needed.
Candidates must be fluent in English (both spoken and written), ESO's official language.
S/He must be self-propelled, self-learning with a decent level to communicate problems in an open manner.