

VACANCY NOTICE FOR A TRAINEESHIP

AREA OF ACTIVITY	REMOTE HANDLING CONTROL SYSTEMS
REFERENCE	F4E/TRA/2016/025
DURATION	9 MONTHS
INDICATIVE START AND END DATE	01/10/2016 - 30/06/2017
LOCATION	BARCELONA (SPAIN)
PUBLICATION DATE	02/05/2016
CLOSING DATE FOR APPLICATIONS	31/05/2016 AT 12:00 PM (BARCELONA TIME)

1. DESCRIPTION OF THE DEPARTMENT/PROJECT UNIT

The RH Project Team is responsible of the procurement of several Remote Handling systems which are used for the maintenance of ITER, in particular of the following packages:

- Divertor Remote Handling System (DRHS)
- Cask and Plug Remote Handling System (CPRHS)
- Neutral Beam Remote Handling System (NBRHS)
- In-Vessel Viewing System (IVVS)

2. DESCRIPTION OF TASKS

The RH Project Team at F4E is developing the Remote Handling Control System (RHCS) architecture for all the above mentioned Remote Handling packages. The RHCS features a set of standard components organized on a 3-layered architecture and Ethernet networked-based communications.

Indeed, the RHCS consists of the following architectural layers:

- the Supervisory Control System for RH tasks supervision and interface to ITER control and data acquisition environment;
- the High Level Control System for operations management, command and control, virtual reality display, viewing and remote diagnostics;
- the Low Level Control System for equipment management

The RHCS architecture interconnects the components of the architectural layers through the following Ethernet-based networks: the control network, the real-time network and the viewing network.

The RH Project Team is currently developing a generic robotics controller, named GENROBOT, with its HMI and a Remote Diagnostic application.

The proposed task aims at extending GENROBOT interface capabilities. The trainee will be required to carry out the following software engineering activities:

- Porting the existing Low Level Controller Interface Protocol (LLC) on the EPICS middleware. The LLC is a DDS-based communication library enabling the command and control of Remote Handling equipment controllers from a set of High Level Control system applications (like HMIs, Virtual Reality and Remote Diagnostics). This activity aims at integrating and testing EPICS in order to enable LLC communications over the ITER CODAC PON network.
- Design, development, integration and testing of a safe real-time teleoperation communication library between a master and a slave system for teleoperation. This work will re-engineer and extensively test a legacy software developed on VxWorks, and apply the software quality rules of the GENROBOT project.
- Porting and testing of the GENROBOT real-time controller on the MRG real-time Red Hat LINUX extension.

3. ELIGIBILITY CONDITIONS

- Be a national of one of the Member States of the European Union or of a Third state fully associated with the Euratom fusion programme (Switzerland);
- The candidate must have finished his/her university degree at least 3 years attested by a diploma. The university degree must have been obtained within the last 3 years before the closing date for applications;
- In order for the trainee to fully profit from the traineeship and to be able to follow meetings and perform adequately, candidates must have good knowledge of English, the main working language of F4E.

Applications will not be accepted from candidates who:

- have already benefited from any kind of in-service training within a European institution or body, or
- who have had or have any kind of employment within a European institution or body.

4. QUALIFICATIONS REQUIRED

Essential:

- A bachelor or master degree in one of the following engineering disciplines:
 - Computer software engineering
 - Robotics engineering
 - Automation engineering
- Experience in
 - Communication middleware technologies as Open DDS, EPICS or equivalent
 - Software development in C and C++ language

Advantageous experience:

- Software Specification and Design
- Software Testing and Validation
- Software Quality management

- Coding standards (as MISRA)
- Development of Human Machine Interfaces
- Development of Real-Time application
- Development of Control Systems applications
- Use and configuration of software development and configuration tools as Eclipse, Bugzilla, Subversion, Jenkins, etc.
- Linux (Red Hat Linux)
- Real-time operating systems (as VxWorks, RT/MRG Linux, etc.)

5. WHAT WE OFFER

Trainees are awarded a monthly maintenance allowance. The monthly allowance for 2016 amounts to € 1087,39.

Additionally, trainees may receive a travel allowance, subject to budget availability, to compensate for travel expenses incurred from the place of residence to the seat of F4E and vice versa. Trainees whose place of recruitment is less than 50 km from F4E's offices shall not be entitled to a travel allowance.

Detailed information about the F4E traineeship procedure as well as trainees' rights and duties can be found in the Decision of the Director of 'Fusion for Energy' on the Acceptance of Traineeships published on our website. We strongly recommend applicants to read them carefully.

Accommodation costs will be covered by the trainee.

6. SUBMISSION OF APPLICATIONS

The online application process starts upon clicking "**CLICK TO APPLY**" on the traineeships page: <http://www.fusionforenergy.europa.eu/careers/traineeships.aspx>.

Applicants must register their applications online through the F4E traineeship's tool by creating a valid F4E user account and choosing the vacancy notice they wish to apply to.

Please note that the online traineeship application tool is the only acceptable means of sending applications. Applicants are responsible for keeping their e-mail addresses and personal details up to date in their profile in F4E online application tool.

The mandatory fields in the profile marked with an asterisk should be duly filled in. Candidates are requested to submit the following 2 documents:

- A detailed Europass curriculum vitae in **English** (can be obtained at the following address: <http://europass.cedefop.europa.eu/en/documents/curriculum-vitae>)
- A motivation letter of 2 pages maximum in English

Applications must be sent by 31/05/2016 (closing time 12:00 pm Barcelona time).

In case you encounter technical problems when trying to submit your application via the traineeship application tool, please make a screenshot and send it to: traineeships@f4e.europa.eu.

It is the responsibility of the applicant to inform 'Fusion for Energy' about any technical problem without delay within the deadline mentioned above.

Please, do not send any supporting documents (i.e.: copies of your ID-card, educational certificates, etc.) **with your application at this stage if not specified in the Traineeships Notice.**