VACANCY NOTICE FOR A TRAINEESHIP

AREA OF ACTIVITY	**CONTROL AND MEASUREMENT SYSTEMS**
REFERENCE	**F4E/TRA/2019/080**
START AND END DATE - DURATION	**01/10/2018 – 30/06/2019 - 9 MONTHS**
LOCATION	**BARCELONA (SPAIN)**
RESERVE LIST – MAXIMUM NUMBER	**5**
PUBLICATION DATE	**29/04/2019**
CLOSING DATE FOR APPLICATIONS	**20/05/2019 AT 12:00 NOON (BARCELONA TIME)**

1. DESCRIPTION OF THE DEPARTMENT/PROJECT UNIT

F4E CODAC team is responsible for the development of Instrumentation and Control components of Europe contributions to the ITER project. The scope ranges from the control and sensors of industrial plants to the sophisticated electronics and real-time software of scientific diagnostics.

The system requirements are developed in collaboration with ITER and F4E Project Teams. The development is performed in collaboration with industry where the team directly manages the prototype phase and the production phase is instead delegated to the industrial partner as well as acceptance testing and commissioning.

CODAC team in particular routinely works on the following areas:

- Development of Industrial Control Systems (Nuclear, Cryogenics, Electrical, …);
- Development of Control System for a large Radio Frequency Heating Plant;
- Development of Control System for a novel accelerator concept;
- Development of Real Time software and Diagnostics Electronics;
- Development of embedded software and FPGA firmware.

2. DESCRIPTION OF TASKS

The trainees will be required to carry out one or more of the following tasks:

- Development of Embedded Real-time Software prototype for the Zynq Ultrascale+ processor. The candidate will be asked to implement some signal processing algorithms and to benchmark the performance. Depending on his skills, some FPGA development will be included. The work will be performed as part of a mixed team involving F4E and industrial personnel.

- Development of data acquisition electronics. The candidate will be asked to do some tests using prototype hardware and to model the results in Matlab. Depending on his skills, he also may be asked to contribute to the development of the firmware both by Matlab modeling and by actually writing part of the code. The work will be performed as part of a mixed team involving F4E and industrial personnel and collaborators from other scientific organizations.
- Development of ITER Electron Cyclotron Master Control System. The candidate will be asked to study both the current implementation of the Electron Cyclotron Test Facility Falcon and the design of the ITER EC System. Depending on his skills, he then will be asked to contribute to the implementation first by modeling it on Matlab and then by implementing some prototype control software and user interface to be tested on Falcon. The work will be performed as part of a mixed team involving F4E, industrial personnel and collaborators from other scientific organizations.
- Development of libraries and tools for integration of industrial control systems into the ITER EPICs environment. The candidate will be trained on the use of ITER EPICS tools. He will be asked to implement user interfaces for various applications. Depending on his skills, he will be asked to contribute to the development and verification of tools. The work will be performed as part of a mixed team involving F4E and industrial collaborators.
- Integration of the IFMIF-LIPAC accelerator. The candidate will be asked to develop EPICS Control System Studio user interfaces for the LIPAC accelerator. Depending on his skills, he also will be asked to contribute to the development of the configurator graphical user interface. The work will be performed as part of a mixed team involving F4E, industrial personnel and collaborators from other scientific organizations.
- Development of a beam tomography diagnostics. The candidate will be asked to develop EPICS Control System Studio user interfaces for the diagnostics and to test a local mockup. Depending on his skills, he also will be asked to contribute to the development of the diagnostics software. The work will be performed as part of a mixed team involving F4E, industrial collaborators and partners from other scientific organizations.

  Ideal candidate is passionate about engineering and science and has a desire to learn and to discover the challenging world of high energy physics.

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, of 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

- University degree in Electronics Engineering, Control Systems Engineering, Industrial Engineering, or
- University degree in Physics Engineering;

- Master´s degree in Engineering is an asset.

5. WHAT WE OFFER

Trainees are awarded a monthly maintenance allowance. The monthly allowance for 2019 in Barcelona amounts to € 1.097,50 (Spain).

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 not later than 20/05/2019
(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.**