Job Title: Instrumentation & Control Engineer IO1009

Requisition ID **4840** - Posted - (France, 13067 St Paul Lez Durance Cedex) - **Engineering of Systems** - **New Posting**

The ITER Organization brings together people from all over the world to be part of a thrilling human adventure in southern France—building the ITER Tokamak. We require the best people in every domain.

We offer challenging full-time assignments in a wide range of areas and encourage applications from candidates with all levels of experience, from recent graduates to experienced professionals. Applications from under-represented ITER Members and from female candidates are strongly encouraged as the ITER Organization supports diversity and gender equality in the workplace.

Our working environment is truly multi-cultural, with 29 different nationalities represented among staff. The ITER Organization Code of Conduct gives guidance in matters of professional ethics to all staff and serves as a reference for the public with regards to the standards of conduct that third parties are entitled to expect when dealing with the ITER Organization.

The south of France is blessed with a very privileged living environment and a mild and sunny climate. The ITER Project is based in Saint Paul-lez-Durance, located between the southern Alps and the Mediterranean Sea—an area offering every conceivable sporting, leisure, and cultural opportunity.

To see why ITER is a great place to work, please look at this video

Application deadline: 12/12/2021
Domain: Engineering
Department: Engineering Design
Division: Heating & Current Drive
Section: Ion Cyclotron
Job Family: Engineering
Job Role: Engineer – 2
Job Grade: P2
Language requirements: Fluent in English (written & spoken)
Contract duration: Up to 5 years

Purpose

As and Instrumentation and Control (I&C) Engineer, you will provide support to ensure the development, installation, integration, commissioning and operation of the Ion Cyclotron Heating and Current Drive (HCD) I&C system.
Your role will include providing technical specifications, system requirements definitions and design finalization of the I&C system, in addition to following the procurement, installation and commissioning of the components until their operation.

Background

The Ion Cyclotron HCD system's main goal is to provide plasma heating in the range of Ion cyclotron frequencies (40 – 55 MHz). This system is composed of high voltage power supplies, Radio-frequency power sources, transmission lines and matching systems, high power antennas and plant control system. A Plant System Controller prototype has been under development at ITER since 2012 and is due for installation and commissioning in 2023. It is based on EPICS control architecture and consists of Programmable Logic Controllers, PXI based controllers and FPGA devices.

Key Duties, Scope, and Level of Accountability

- Supports the design finalization, manufacturing oversight, installation, commissioning, final integration and operation phases of the Ion Cyclotron I&C System;
- Defines the interfaces of the control and data acquisition systems with Ion Cyclotron system components, and with the auxiliary systems such as gas, water and electrical systems (cabling, cable

trays, etc), ensuring up to date documentation, diagrams and drawings are available;
- Follows the procurement activities related to the I&C of the Ion Cyclotron equipment and plant system controller;
- Develops and performs the required testing, commissioning and operation plans for the I&C system ensuring compliance with ITER requirements;
- Assists with the preparations for the installation of the Ion Cyclotron HCD systems on ITER site, in particular write the installation documentation such as bill of material, cabling diagram, 2D drawings, procedure, etc.;
- Reports variances on all technical, cost and schedule aspects and proposes mitigation solutions;
- Supports effective risk identification and management;
- May be requested to be part of any of the project/construction teams and to perform other duties in support of the project;
- May be required to work outside ITER Organization reference working hours, including nights, week-ends and public holidays.

Measure of Effectiveness

- Supports effectively the design, procurement, installation and commissioning activities related to the Ion Cyclotron I&C system to meet the defined quality, cost and schedule as per ITER project requirements;
- Prepares the procedures for testing, commissioning and operation of the IC system within the defined schedule and in line with quality standards and regulations;
- Maintains good communication with the interfacing teams within ITER, Domestic Agencies and with external contractors to ensure compliance of deliverables;
- Issues and maintains accurate documentation related to the Ion Cyclotron I&C system;
- Develops the interfaces with other Ion Cyclotron HCD subsystems and other plant systems within the defined schedule;
- Follows the procurement of Ion Cyclotron HCD system components within the defined quality, cost and schedule.

Experience & Profile

- ***Professional Experience:***
  - Minimum 5 years' experience in I&C Engineering in the field of R&D or experimental devices within complex international environments or projects.
- ***Education:***
  - Master degree in engineering, I&C field or other relevant discipline;
  - The required education degree may be substituted by extensive professional experience involving similar work responsibilities and/or additional training certificates in relevant domains.
- ***Language requirements:***
  - Fluent in English (written and spoken).
- ***Technical Competencies and demonstrated experience in:***
  - **Specialized Domains of Work: Instrumentation & Control** (design, development and implementation of I&C systems and fast data acquisition systems for large experimental devices);
  - **Interface Management** (identify, resolve and maintain technical and functional interfaces);
  - Developing testing, commissioning and operation plans for I&C Systems;
  - System/process modeling and simulation, rapid prototyping and data processing;
  - Using laboratory equipment like multimeters, oscilloscopes and signal generators;
  - Development with systems used in for I&C systems (Matlab/Simulink, Linux, C/C++, LabView FPGA, EPICS, Siemens S7).
- ***Behavioral Competencies:***
  - Collaborate: Ability to facilitate dialogue with a wide variety of contributors and stakeholders;
  - Communicate Effectively: Ability to adjust communication content and style to deliver messages to work effectively in a multi-cultural environment;

- Drive results: Ability to persist in the face of challenges to meet deadlines with high standards;
- Manage Complexity: Ability to analyze multiple and diverse sources of information to understand problems accurately before moving to proposals;
- Instill trust: Ability to apply high standards of team mindset, trust, excellence, loyalty and integrity.

The following important information shall apply to all jobs at ITER Organization:

- Maintains a strong commitment to the implementation and perpetuation of the ITER Safety Program, ITER Values (Trust; Loyalty; Integrity; Excellence; Team mind set; Diversity and Inclusiveness) and Code of Conduct;
- ITER Core technical competencies of 1) Nuclear Safety, environment, radioprotection and pressured equipment 2) Occupational Health, safety & security 3) Quality assurance processes. Knowledge of these competencies may be acquired through on-board training at basic understanding level for all ITER staff members;
- Implements the technical control of the Protection Important Activities, as well as their propagation to the entire supply chain;
- May be requested to work on beryllium-containing components. In this case, you will be required to follow the established ITER Beryllium Management Program for working safely with beryllium. Training and support will be provided by the ITER Organization;
- May be requested to be part of any of the project/construction teams and to perform other duties in support of the project;
- Informs the IO Director-General, Domain Head, or Department/Office Head of any important and urgent issues that cannot be handled by line management and that may jeopardize the achievement of the Project’s objectives.