Job Title: Interlock Systems Engineer IO0665

Requisition ID **4982** - Posted - (France, 13067 St Paul Lez Durance Cedex) - **Control and Data Acquisition** - **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: 09/01/2022
Domain: Science & Operation
Department: Science,Controls & Operation
Division: Controls
Section: Facility Control System
Job Family: Engineering
Job Role: Engineer – 3
Job Grade: P3
Language requirements: Fluent in English (written & spoken)
Contract duration: Up to 5 years

Purpose

In this role of Interlock Systems Engineer, you will be responsible for the overall integration of the Central Interlock Systems (CIS) technologies. You will ensure delivery of the Instrumentation & Control (I&C) functional specifications related to interlock systems, collaborating with ITER teams and Domestic Agencies.
This includes contributing to the construction, installation and commissioning of the ITER CIS and coordinating the technical works carried out by the different industrial suppliers.

Background

The Investment Protection System is designed to prevent damage to the ITER Tokamak and support systems due to off normal conditions and/or failures. The CIS is designed to marshal interlocks between the various Plant Systems where inter-system communication is required. Local Plant Interlock systems (PIS) are being developed by the various Domestic Agencies and suppliers, and once they arrive at the ITER site these systems will be integrated with the CIS, which together will form the Interlock Control System (ICS) in charge of overall investment protection for the I&C system of the ITER facility.

Key Duties, Scope, and Level of Accountability

- Leads the integration of the different CIS technologies to achieve full compliance to system requirements;

- Takes a leading role in the identification, classification, specification and implementation of I&C functions related to Interlock Systems, liaising with different plant system experts;
- Contributes to the design, construction, installation, integration and commissioning of the CIS, ensuring proper interfaces between the CIS and other Plant Interlock Systems;
- Develops and maintains up-to-date functional analysis of the Interlock Control System;
- Participates in the ITER Machine Protection Panel (MPP) as support in any related decision making;
- Coordinates the CIS suppliers in order to ensure that deliverables are provided in accordance with technical requirements and scheduled milestones;
- Maintains and propagates the ITER guidelines and standards for the implementation of interlocks across all the ITER Project;
- Supports the Controls Division as interlocks I&C specialist during the reception and integration of the different Plant Interlock System I&C, ensuring the correct implementation of investment protection guidelines;
- 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, weekends and public holidays.

Measure of Effectiveness

- Ensures that the CIS hardware and software fully comply with the system's requirements;
- Delivers and maintains a comprehensive and complete functional analysis of the Interlock Control System;
- Ensures that acceptance tests are performed to a high standard and that relevant documentation is prepared in due time and consistent with applicable requirements and standards;
- Prepares and executes effectively the validation, installation and commissioning of the Central Interlock Systems;
- Collaborates effectively and professionally with all stakeholders and maintains excellent relations with interfacing teams.

Experience & Profile

- ***Professional Experience:***
  - Minimum 8 years' experience in critical I&C systems engineering or control systems for machine protection in the field of large industrial and/or scientific facilities within complex international environments or projects.
- ***Education:***
  - Master's degree or equivalent in Engineering specialized in control systems 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 (Interlock Systems):** Strong experience in functional analysis definition, as well as in functional specification for Interlock systems for large industrial and/or scientific facilities;
  - **Interface Management:** Identify, resolve and maintain complex interfaces;
  - **Verification & Validation methods**, RAMI analysis and similar dependability techniques;
  - The application of functional safety standards (e.g. IEC 61508) to investment protection I&C systems;
  - Control logic solvers used in Investment Protection I&C systems: Siemens S7 safety Programmable Logic Controllers (PLC), National Instruments Fast Controllers (cRIO), FPGA, hardwired protections;

    - Participating in Factory and Site Acceptance testing of control system components and systems;
    - Project Management experience is required;
    - Microsoft Office tools; experience with Microsoft Visio is considered as an advantage.
- ***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.